Convegni
Atlante del Vicino Oriente antico

Eranshahr

Man, Landscape, and Society in Arsacid and Sasanian Iran

edited by Carlo G. Cereti, Pierfrancesco Callieri, Vito Messina

University Press

Sapienza
Università Editrice

Collana Convegni 75

Atlante del Vicino Oriente antico
Opere collettanee 4

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SAPIENZA
UNIVERSITÀ EDITRICE

2025

Il volume è stato pubblicato grazie al contributo PRIN 2017PR34CS *Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan* (Coordinatore Nazionale: Carlo G. Cereti).

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Sapienza Università Editrice
Piazzale Aldo Moro 5 – 00185 Roma

www.editricesapienza.it
editrice.sapienza@uniroma1.it

Iscrizione Registro Operatori Comunicazione n. 11420
Registry of Communication Workers registration n. 11420

ISBN: 978-88-9377-388-1

DOI: 10.13133/9788893773881

Pubblicato nel mese di luglio 2025 | *Published in July 2025*

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Impaginazione a cura di | *Layout by*: Carlo G. Cereti, Pierfrancesco Callieri, Vito Messina

In copertina | *Cover image*: Texts, material culture, and society from Arsaces to Yazdegard III in Pars, Pahlaw and Khuzestan (adapted from *Imperia Persarum et Macedonum*, in H. Kiepert, *Atlas Antiquus. Eight maps of the Ancient World for Schools and Colleges*, London–Edinburgh–Berlin 1859, map 1).

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Preface

The Eranshahr project was first conceived in 2017 to analyse the relations between humans, political power, and territory in Arsacid and Sasanian Iran (3rd BCE – 7th CE), straddling two major political transitions: the first between the Seleucid and Arsacid dynasties, the second between the Sasanian house and the Islamic caliphate.[1] Within this framework, at the time we aimed to assess continuity and discontinuity in Iranian identity with a specific focus on territories that lay within the boundaries of today's Islamic Republic of Iran. However, the project's activities started with great delay, later interrupted due to COVID-19 and the consequences of an administrative appeal that caused great harm to this and other projects in the same scientific area. Specifically, due to changing conditions of international politics, we faced growing difficulties in carrying out our work in Iran and had to adapt to the new situation. Nonetheless, the members of the team were able to develop an alternative approach to the subject matter, which allowed them to provide answers to the original research questions. This was made possible by the very nature of the research team, which is typified by a high degree of interdisciplinarity, giving rise to a multi- and inter-disciplinary approach. Historians, linguists, and archaeologists joined forces to tackle the history of a millennium that was critical to the birth of modern Iran. In this context, the present volume highlights the very nature of our project, involving a diversified team of specialists working with different methodological approaches, and sharing their disciplinary expertise in a multidisciplinary and cross-disciplinary perspective, which is needed to adequately address one of the most significant cultural contexts of the ancient world. Methodologies typical of the study of written sources have been cross-examined in the light of methods that belong rather to the archaeological study of the territory, and both have been used to reconstruct historical diachrony. We set off by examining three nodal areas of ancient Iran, each relating to the field research carried out by a specific sub-team: Sapienza focused its activities on the north-central plateau including the historical regions of Mād and Pahlaw, straddling the mountain chains of the Zagros and the Alborz; Bologna directed its attention on the southern region of Pārs, home to the Sasanian dynasty, while Torino worked on the piedmontal area of Khuzistan, where syncretism between Iran, the Classical world, and Mesopotamia was particularly strong. Later on, the growing difficulty of working in Iran pushed us to add a neighboring area, Iraqi Kurdistan, to our investigations.

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[1] This volume contains the proceedings of the final workshop of the PRIN 2017PR34CS "Eranshahr: uomo, ambiente e società nell'Iran arsacide e sasanide. Testimonianze scritte, cultura materiale e società da Arsace a Yazdegard III. Tre casi studio: Pars, Pahlaw e Khuzestan", held in Ravenna on February 22–23, 2024. The workshop and the volume were financially supported by PRIN 2017PR34CS. Worth noting is that the research program was delayed by COVID-19 and several administrative complications, which led to a late start and a lengthy interruption of our work, justifying the need for a new timeline.

Notwithstanding the modifications to the original plan made during the project, we could nonetheless research a coherent complex of historical phenomena, highlighting lines of continuity and discontinuity. This was made possible by the fact that in western Asia no society of antiquity documents phenomena so similar to the challenges we face today – intensive resource exploitation, migration flows, hyperconnectivity – better than post-Achaemenid Iran. Moreover, these phenomena can only be studied by highlighting the impacts human beings and social structures have had on the landscape. This is what we have attempted to show in the present volume, though archaeological and epigraphical research in the region still needs further efforts to deliver a sufficiently complete set of data. Few urban centres have been coherently studied or even stratigraphically excavated, which limits the datasets on which specialists work. Nonetheless, the regions considered in our study, while being characterised by meaningful differences, provide complementary information that is useful to set the path towards a full understanding of the interactions between man, territory, and political power in pre-Islamic Iran. From a purely geographical point of view, the Iranian plateau and neighbouring areas are characterised by large empty spaces in which urban oases flourish, connected one to the other by a network of roads and trade routes. Mimicking historical patterns, the academic approach to the region, with a few notable exceptions, is characterised by a large number of studies dedicated to a limited number of areas, contrasted with the relative lack of information on the overall anthropic presence. This is due to the need for further archaeological and epigraphical research and to the lack of documentation for vast spans of territory, which is due to the scarcity of human and financial resources, as much as to the precarious political situation in the region. In such a context, choosing a multidisciplinary approach, addressing the period in question with methodologies proper to history and epigraphy combined with those of a more properly archaeological scope, is fundamental, since it allows a continuity in research, also when presence on the ground is more difficult.

Within this framework, Sapienza University of Rome has analysed aspects of the spatial, linguistic, and socio-cultural development of human societies in the northern part of the Iranian plateau during the historical periods included in the project, setting itself some objectives of particular impact. In a set of separate contributions, the PI, together with other international colleagues, has focused on a critical review of the existing archaeological documentation and inscribed materials, mostly ostraca, found during M.R. Nemati's campaigns in the Ray and Varāmin area.[2] This approach was supplemented with the collection and critical reading of relevant historical and documentary sources, carried out by G. Terribili, C. Insom, C. Marchetti, and M. Vassalli (Sasanian glyptic and numismatics, Middle Persian sources, numismatics and Islamic sources) in articles that are listed in the contributions published in the present volume. While philological and historical research continued undisturbed, the focus of archaeological work gradually shifted from the plains to the south of Tehran to the province of Kermanshah, and then to Iraqi Kurdistan. In 2018, G. Maresca, G. Terribili, and C.G. Cereti travelled to Kermashah, where they visited the major Sasanian sites of the province. This survey led to two preliminary campaigns at the site of Kangavar, both in 2019, that took place immediately before the COVID-19 crisis. In 2021, as soon as it was again possible to travel, the PI carried out one more field trip, but then travel was made impossible by the deteriorating international situation. Pending authorisation to access the northern slopes of the central Zagros, but reluctant to forego archaeological research, C.G. Cereti, G. Maresca, J. Bruno, G. Terribili, and B. Faticoni intensively worked on sites in the Slemani province of Iraqi Kurdistan, carrying out campaigns at Paikuli and Yassin Tepe, furthering a project that had started in 2006.

The unifying perspective of these different activities was reconstructing development patterns of settlements and societies with a special interest in the transition from Sasanian to Islamic times and identifying the role of human agency on the landscape and in the corresponding political and administrative systems.[3] Encompassing a wide range of cultural aspects, including economic, identity, linguistic, and religious dynamics, many of the cultural interaction processes that led to the Islamic conquest of the Iranian plateau need to be understood through a crosscutting investigation carried out by experts in various fields. The methodological approach adopted by the team is original since archaeological and spatial data, acquired and processed with innovative techniques, have been interpolated with systematically screened textual data and contextualised from a perspective of historical interpretation of complex phenomena. On the one hand, the study of literary sources allowed a better understanding of the perception that societies of the period had of changes and territorial policies. On the other hand, the localisation in a GIS environment of epigraphs in context, modelled on previous experiences such as the one developed by the LatinNow ERC project based also on materials collected by the EAGLE network, allowed the drawing of complete thematic maps, opening the way to a wider use of digital humanities. The interpolation of philological and spatial data gave rise to a diachronic reconstruction of the interventions on territory and society of the time, also elucidating how major environmental or political changes were culturally mediated, received, and metabolised. Furthermore, Sapienza's intervention focused on the epigraphic material from the Arsacid and Sasanian periods in the three regions, in coordination with the other two research groups and encompassing a wide range of cultural aspects, including dynamics of an economic nature. The starting point of our research is represented by numerous works on Parthian and Sasanian epigraphy[4] and the publications of papyri and scrolls by D. Weber,[5] to be complemented by the more recent writings of Ph. Gignoux and Weber himself on the Middle Persian documents of Tabaristān that have appeared in recent volumes of *Res Orientales*.[6] Fundamental are R. Gyselen's individual contributions on Sasanian glyptic[7] and the two numismatic projects of the *Sylloge Nummorum Parthicorum* and *Sylloge Nummorum Sasanidarum* run by the Austrian Academy of Sciences. Regarding archaeological investigations in the area, see the pioneering work of E.F. Schmidt[8] and the more recent work of R. Rante on Ray,[9] the project coordinated by E. Sauer on the defensive system of northern Iran,[10] and the study by Nemati, Mousavi Nia, Sauer and Cereti on Qaleh Iraj,[11] also known as Qaleh Gabr. See further Keall's studies on Qaleh Yazdegard,[12] the work done by Azarnoush,[13] and earlier on by Kambaksh Fard,[14] on Kangavar, and the one by Moradi for Qasr-e Shirin.[15] The relevant bibliography on the archaeological work at Paikuli and Yasin Tepe, as well as on related epigraphic studies, can be found in the articles by Bruno and Maresca, and by Cereti and Faticoni. The present volume includes five contributions belonging to this line of research, providing the necessary stepping-stone for further research and publication.

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[2] SAUER *et al.* 2013; NEMATI *et al.* 2020; CERETI *et al.* 2022.

[3] CERETI *et al.* 2021.

The first one, by Jacopo Bruno and Giulio Maresca, discusses "Ongoing MAIKI Research at Yasin Tepe in Iraqi Kurdistan: A Possible Sasanian and Early Islamic Crossroads in the Shahrizor Plain", the latter being a broad intermountain valley covering an area of approximately 50×25 km within the Sulaymaniyah Governorate that has played a significant strategic role being, throughout the ages, a hub of commercial traffic and cultural contacts along the Zagros axis. This contribution offers an overview of ongoing archaeological research led by the MAIKI mission at Yasin Tepe, aimed at shedding light on the region's significance during the Sasanian and Early Islamic periods and highlighting its interaction with adjacent areas.

Carlo G. Cereti and Barbara Faticoni have written on "The Paikuli Monument in its Territory", focusing on the geographical setting of the monument itself, which is positioned on the border of Asūristān at a strategic junction crossing the narrow valley of the Çeme Qûłe stream, while connecting the large intermountain basin of Syārazūr, this being the ancient name of modern Shahrazur, with the great Mesopotamian plains to the south-west. The authors have tried to show that Narseh likely marched towards Mesopotamia starting from Yasin Tepe, crossed the Qaradagh at Paikuli, and then went further south to the region of present-day Kifri. A second part of the paper deals with the archaeological excavations carried out in Paikuli, describing the earlier publication as well as presenting preliminary results that will be published in full detail in a forthcoming volume.

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[4] HUYSE 2009.

[5] WEBER 1992; 2003; 2008.

[6] GYSELEN 2012; 2014; 2016; 2017.

[7] GYSELEN 1989; 2002; 2007; 2019.

[8] SCHMIDT 1935; 1936.

[9] RANTE 2014.

[10] SAUER *et al*. 2013.

[11] NEMATI *et al*. 2020.

[12] KEALL 1977.

[13] AZARNOUSH 1981; 1987; 2009.

[14] KAMBAKSH FARD 2007.

[15] MORADI 2012.

Camilla Insom and Massimiliano Vassalli have contributed "On Roads and Ruins: Across the Zagros and the Shahrazur in the Accounts of Western Travellers in the Early 19th Century" an article investigating early nineteenth-century British travel across the frontier zone between Ottoman Iraq and Qajar Iran, with a particular focus on the regions of Shahrazur and the Zagros mountains. These areas were the object of a renewed geopolitical and commercial interest in the colonial period, being a part of the great chess game played by European nations across Asia. The two authors attempt a reconstruction of the itineraries connecting the Baban Emirate, and Sulaymaniyah, with the Mesopotamian lowlands and the Iranian highlands. In this larger framework, European travellers have recorded several precious observations on ancient monuments and cultural heritage sites, including ruins, inscriptions, and urban remnants that are precious for our understanding of the territory.

Carlo Marchetti prepared an important article on "Highways and Byways through Central Zagros, Shahrazur, and Dinavar in Late Sasanian and Early Islamic Times" where he collected and studied late Sasanian and early Islamic documentary sources describing the road system of the central Zagros range. Again, this paper focuses on the historic routes connecting the Mesopotamian lowlands with the regions of Shahrazur in the north and *al-Ǧabal/Ǧibāl* in the east, respectively hosting the important urban centres of Shahrazur (Nim-az-rāh) and Dinavar.

The fifth contribution, jointly written by Bahra Salih and Gianfilippo Terribili, deals with "Four Clay Sealings from the Slemani Museum (KRG Iraq): The Province of Ērān-āsān-kar-Kawād and Kawād I's Interest in Western Zagros". These *bullae* are part of an important collection now housed at the Slemani Museum in the Kurdistan Region of Iraq. The four objects studied carry the sealings of administrative offices from the province of Ērān-āsān-kar-Kawād and are therefore particularly important for reconstructing the administrative geography of upper Diyala, prompting further study on King Kawād I's reforms and the late Sasanian administrative reassessment of the region bridging the course of the Diyala River and the Shahrazur plain.

Carlo G. Cereti

The University of Bologna has given priority to the study of the dynamics of human settlement in the Pārs region, where its archaeological mission has been active since 2005, with a special – though not exclusive – focus on the area which lies between the Firuzabad Plain and the Persian Gulf coast, which has been studied from a diachronic perspective capable of emphasising the relationship of settlements with territorial policies and communication routes in the different eras examined. There were two main objectives for the realisation of such a perspective. The first, carried over the entire area indicated, and based on existing documentation combined with new cartographic elaborations, are archaeological maps of the areas chosen for research, created in a GIS environment. Thanks to these works, it has been possible to address topics of primary importance, such as the relationship between human settlement and different climatic-environmental conditions, the administration's architectural and urbanistic interventions on the territory aimed at fostering settlement – particularly those of Ardashir I mentioned in the textual sources – and the connection of settlements with land and sea routes. Surveys and limited excavation were foreseen in the original project, but eventually could not be carried out because of the new global situation. For the areas of Pārs studied by the University of Bologna, which have benefited from solid works with a historical slant,[16] the starting point have been the German archaeological investigations in Firuzabad,[17] the Iranian ones in the Lāmerd/Mohr area,[18] the British and U.S. ones on the Persian Gulf,[19] and the French-Iranian paleoenvironmental research in Fars.[20] Six papers belong to this line of research.

Pierfrancesco Callieri opens the section of Bologna University with an essay titled "The Dynamics of Human Settlement in Historical Times in South-Central Fars, from Firuzabad to the Persian Gulf: First Results of a New Research Project", which provides an overview of the project, both in its initial formulation and in its actual development and results, which were limited by a series of external constraints. Besides pandemics, the non-issuance of entry visas to Iran as of autumn 2022 reduced the conduct of the research programme, which should also have included a major field activity by an Iranian-Italian Joint team. These activities, however, were carried out by the Iranian team alone, to whom we owe a positive balance. We must also consider that the contributions of Dietrich Huff (archaeology), Ali Eghra (topography), Kourosh Mohammadkhani (geophysics), Andrea Sembroni (geomorphology) and Aleksander Engeskaug (Middle-Persian sources), were not ready in time for the present volume, and will be published separately. Despite these shortcomings, some of the results of the project, such as the diachronic view of the road network of Fars, as well as the geomorphological and archaeological knowledge of the Firuzabad plain, substantially increase our knowledge. In particular, the natural road connection of the monumental site of Tomb-e Bot, which we date to the Late Arsacid (Askari Chaverdi) or rather Early Sasanian (Callieri) period, with the fertile plain of Gāvbandi, confirms the latter's important role, suggesting that in that historical period, the main harbour is not to be found in Sirāf but rather in the bay of Nāyband.

Emad Matin has addressed one of the main themes of the project, connectivity. His paper concerns "Connectivity Network of Southern Fars before the Arsacid and Sasanian Eras" and explores the roots of the developed network of roads, which is well known in the area during the Sasanian period. His essay focuses on the Achaemenid royal road that connected the two ‘royal residences’ of Persepolis and coastal Tamukkan, located in the present-day province of Bushehr. It highlights that Tamukkan, in addition to controlling the coastal region, was also responsible for organising overland and maritime travels. This paper attempts to explain the topography of the region and the bond of coastal Tamukkan with the sea using available archaeological and geomorphological data. Remarkably, this tie is mentioned in historical sources.

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[16] TOMASCHEK 1890; BERTHELOT 1935.

[17] HUFF 2014.

[18] ASKARI CHAVERDI 2017.

[19] WHITEHOUSE, WILLIAMSON 1973; WHITCOMB 1987; PRIESTMAN 2005; WHITEHOUSE 2009.

[20] DJAMALI, DE BEAULIEU 2014; SHUMILOVSKIKH *et al*. 2017.

Identifying Arsacid and Sasanian ports along the Iranian coast of the Persian Gulf plays a crucial role in understanding historical settlement dynamics and communication patterns in an area characterised by difficult climate and environmental conditions. Diego Maria Mezzapelle’s profound experience as a navigator and underwater archaeologist has made it possible to propose the main harbour of the Early Sasanian period in the Bay of Nāyband rather than at Sirāf, using both the geomorphological characteristics of the seabed and the banks of the bay and the current climatic conditions, seen in the light of traditional navigation techniques. His contribution, “Ancient Landings and Harbours in the Light of Traditional Navigation Practices: The Case of the Nāyband Bay Site”, is based on recent archaeological studies which have revived research into naval and maritime archaeology, particularly by Iranian teams exploring various regions of the Persian Gulf. As part of these efforts, considerable attention has been paid to the reconstruction of the ancient coastline in an area with geomorphological changes and environmental conditions relevant to port activities. A remarkable inventory of stone anchors along the northern coast of the Persian Gulf highlights the potential importance of Nāyband as a central port, as evidenced by a significantly higher number of anchors compared to other sites, including Sirāf.

The fourth paper, written by Alireza Askari Chaverdi – the Iranian co-director of the Iranian-Italian Joint Archaeological Mission in Fars – is dedicated to “Iranian Research on Human Settlement in the Central-southern Fars: The Lāmerd and Mohr Valleys”. Information regarding ancient settlements along the northern coast of the Persian Gulf is limited to sites such as Sirāf, Bushehr, and Hormoz. Thus, the new archaeological surveys of the northern coast and the hinterland plains in the counties of Lāmerd and Mohr are of great importance. In particular, the author’s archaeological investigations at the site of Tol-e Pargu, in the Gāvbandi plain, have offered a clue for understanding this area’s great importance and that of the adjacent Nāyband bay. The focus of this article is not only to identify the capacity for living in a difficult environment and using the limited natural resources, but also, given the region’s location within the geographical area of Fars Province, to shed light on the influence of the Achaemenid and Sasanian empires on the nature of the settlements.

Paolo Severi, with his contribution “Craft Productions in Ardaxšīr-Xwarrah”, intends to emphasise how necessary it is today to initiate a systematic study of the materials brought to light in this ancient and medieval city known mostly only for its distinctive urban layout and ingenious architecture, neglecting the surface documentation. The present contribution constitutes a preliminary step in the systematic study of the craft productions of Ardaxšīr-Xwarrah, gathering the clues of possible craft activities from the data recently collected in Firuzabad in addition to the excavations conducted by the Iranian Centre for Archaeological Research. Although the absence of a certain stratigraphic sequence does not allow placing the collected data in a precise chronological framework, it has been possible to initiate a study of at least some of the traces of ancient craft activities. In particular, a large fragment of raw glass paste found during surface survey has allowed some important remarks on the production in the Islamic city of Gur of raw glass or rather of glass artefacts produced with imported glass ingots.

With the last contribution, dedicated by the ceramologist Serenella Mancini to "Tol-e Ajori Gate: New Insights from Robbery Pits and a Comparative Analysis with Estakhr", we remain in the sphere of craft productions, and more specifically of ceramics from the first centuries of Islam, with a geographical shift to central Fars, and more precisely to the monumental gate brought to light by the Iranian-Italian mission at the site of Tol-e Ajori, only 3.5 km from the Terrace of Takht-e Jamshid (Persepolis). This study deals with the final phase of the Tol-e Ajori monument and focuses on the analysis of the ceramic fragments recovered from numerous robbery pits, which significantly damaged the monument's structure. The ceramic assemblage, extensively damaged and fragmented, is mainly datable to the Islamic period (9th–13th centuries). A comparison with the ceramic corpus from Estakhr, the main site of central Fars in that area, with a rich and complex history, reveals significant similarities and analogies in both unglazed and glazed wares, particularly in the moulded relief and monochrome wares. These similarities suggest a close connection between the looting at Tol-e Ajori and the Islamic-period development of Estakhr.

Pierfrancesco Callieri

The University of Torino has collected published archaeological and spatial documentation on the Khuzestan region and integrated these materials with information acquired anew, both on the field, thanks to surveys conducted in highland Khuzestan, and on existing datasets, particularly regarding aerial imagery for remote sensing analysis. Spatial, archaeological, and material evidence was thus analysed to create a shared GIS environment allowing the creation of multiscale thematic maps and digital models (DTM and DEM). Discrete areas specifically selected for such an integrated approach have been the plain of Susa, in the lowlands of Khuzestan, and the area of Izeh/Malemir, in the highlands. Interpolated with textual data, these elements allow studies on various aspects concerning land systems, such as the extent of anthropisation, land use and connectivity, spatial policies, processes of resilience to landscape change, and human impact. The understanding of dynamics of impact, development, and exploitation, which are based on the study of tangible signs of regional or supra-regional political power present on the territory, such as infrastructures and mountainous sanctuaries, delineates the different degrees of political potential of interaction with the territory over time, as well as the complexity and sustainability of territorial policies.

The data for such crosscutting analyses have been partly acquired through field research activities that the University of Torino has been conducting since 2008, later expanded through the acquisition of historical mapping and digital images or models. Studies on settlement patterns have been carried out in Khuzestan since the 1970s. However, attention was utterly directed to the alluvial plains of the region, especially Susiana, focusing on very specific aspects, such as hydrogeological setting or prehistoric settlement,[21] or on historical epochs different from the transitional periods identified here,[22] while others have been much discussed for the methodological approach.[23] Instead, the mountainous areas of the region were far less scrutinised, due to their geomorphological setting, which hinders the creation of affordable interpreting models. Before the publication of the results of the present project, there were no published studies addressing the impact of man and political power on the territory from a historical perspective based on the interpolation of archaeological and textual data; the highland region area around Izeh/Malemir was widely unknown;[24] and more important, the two different contexts were not studied comparatively. Our contribution to the field, though gravely hampered by outside circumstances, has allowed us to start working on the comparison of settlement patterns in the very different territorial contexts (alluvia and mountains) characteristic of the region. Four papers published in the present volume will present the innovative results of this line of research.

Vito Messina has addressed "Human–Environment Interaction in Elymais" from the Seleucid to the late Parthian period, basing his essay on the interpretation of spatial data integrated with the knowledge acquired on materiality. He has therefore introduced the investigation conducted by the University of Torino on anthropisation processes, natural resource exploitation, connectivity and resilience dynamics. In this paper, a comprehensive understanding of human interventions, based on the analysis of settlement patterns, is addressed by taking into consideration the results obtained by the other studies conducted by the unit, aiming to facilitate further comparison with textual evidence and, in so doing, understand more comprehensively territorial policies. The dualistic geomorphology of the region is particularly taken into consideration when data collection, elaboration and merging is introduced: archaeological and terrestrial data integrated into a shared GIS environment allowed for the creation of thematic maps. Spatial analysis focused on the plains of Susa and Shushtar, as well as the highland region of Izeh/Malemir and the terraced sanctuaries located there, which are seen as visual markers of power. A nuanced perspective on the interplay between human and landscape agency is offered to enhance the understanding of complex diachronic dynamics.

The paper by Enrico Foietta is entitled "Settlement Pattern, Infrastructure, and Land Exploitation in the Territory of Susa and Shushtar. A Comparative Study of Two Lowlands during the Seleucid, Parthian and Elymean periods". It analyses with an integrated approach the data already published on regional surveys to offer new insights and evaluations on settlement dynamics and land use strategies. The analysis is particularly conducted thanks to the scrutiny of aerial digital imagery and to the comparison between observed anomalies with data so far acquired on the ground. The pivotal importance of the waterways network in the lowlands emerges clearly from the effects it had on shaping the land system throughout the centuries and the influence it exerted on the placement of different-sized settlements.

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[21] WALSTRA *et al*. 2009; 2010; HEYVAERT *et al*. 2012.

[22] For the Deh Luran plain ALIZADEH *et al*. 2004; WRIGHT, NEELY 2010.

[23] WENKE 1975–1976.

[24] WRIGHT 1979.

Francesca Giusto has assessed "Man and Environment in the Mountain Region of Ancient Elymais". In her paper, human/landscape reaction in mountainous environments has been investigated diachronically, based on the interpretation of mountainous sanctuaries as landmarks of a system of sparse settlements. Sanctuaries are seen as prominent archaeological evidence of a territorial context that has remained marginal in archaeological studies. Published and unpublished data from archaeological surveys and excavations have been integrated to be scrutinised in their geographical context, especially thanks to a comparative approach particularly focusing on spatial analysis and the systematic study of both cartographic and remote sensing data, crossed with ancient literary evidence.

In her paper "The Susiana Plain and the Highlands of Iranian Khuzestan: Pottery Production as Socio-cultural Indicator in the Hellenistic and Parthian Periods", Alessandra Cellerino studies the socio-cultural backgrounds of these crafts through a meticulous interpretation of material evidence. The intensification of cross-regional economic and cultural connectivity is addressed considering the circulation of materials and technologies of pottery production, use, and consumption as related to archaeological contexts. Pottery production is thus examined also as a social indicator, given the abundance of this class of daily-life objects in both the alluvial and mountainous environments examined by the University of Torino. Complex phenomena of coexistence of global and local trends in pottery production emerge from this study, along with the inter-regional propensity of those involved both in the production and use of containers. This is evidenced by the repertoires of the two areas examined because of the diffusion, adaptation, and integration of global models and types into the local productions. Particularly in the piedmont of Khuzestan, a production originating in local pottery traditions of Iron Age III–IV appears to have integrated international forms. If ancient Susa remained a crucial hub in the network of political and economic contacts within the Seleucid and Parthian domains, probably playing an essential role in the diffusion and transmission of cultural models and new trends, highland Khuzestan, crossed by routes connecting Susa and Shushtar to the oasis of Esfahan, were a privileged meeting point between Mesopotamia and the Iranian plateau. Archaeological research corroborates the existence of a balanced mixture of different cultural traditions.

Vito Messina

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PARTE I

ROME RESEARCH UNIT

WESTERN ZAGROS IN LONG LATE ANTIQUITY: SETTLEMENTS, ROUTES, AND ROYAL AGENCY

Edited by Carlo Marchetti

1. MAIKI Research at Yasin Tepe in Iraqi Kurdistan: A Preliminary Report on the 2023 Excavations at a Possible Sasanian and Islamic Crossroads in the Shahrazur Plain

Jacopo Bruno, Giulio Maresca

Abstract

The Shahrazur Plain is a broad intermontane valley, extending over an area of approximately 1300 sq. km within the present-day Sulaymaniyah Governorate in the Kurdistan Region of Iraq. Throughout the centuries, this area has played a significant strategic role as a hub of commercial traffic and cultural contacts along the Zagros axis, connecting the Mesopotamian alluvial plains and the Iranian Plateau. During the Sasanian period, the area, a region whose name is recorded as Syārazūr in Middle Persian sources, was situated roughly midway along the route connecting two important poles of Sasanian royal ideology: the capital city of Ctesiphon and the Ādur-Gušnasp fire temple complex in present-day Iranian Azerbaijan, thus attracting the interest of the Sasanian royal power. In 2023, the MAIKI – Italian Archaeological Mission in Iraqi Kurdistan of Sapienza University of Rome – initiated stratigraphic excavations at the site of Yasin Tepe, located in the northern sector of the Shahrazur Plain. This site constitutes the most significant archaeological mound in the area, with an overall extent of approximately 40 hectares. Occupation at the site, likely dating back to the Halaf period and evidenced by previous archaeological work, indicates a substantial continuity of settlement until the Islamic era. Ongoing archaeological research by the MAIKI mission at Yasin Tepe aims to elucidate the region's significance during the Sasanian and Early Islamic periods. This contribution offers an overview of Sasanian period archaeological evidence and ongoing research in the Shahrazur Plain, and, furthermore, presents initial findings from MAIKI's 2023 excavations at the 'acropolis' area of Yasin Tepe.

Keywords

Shahrazur Plain, Yasin Tepe, Sasanian period, Islamic period, Stratigraphic excavations, Material culture, Pottery.

1.1. The Shahrazur Plain in Late Antiquity: an overview

The Shahrazur Plain, a wide and fertile intermontane valley, is located approximately 30 kilometres southeast of the city of Sulaymaniyah, within the homonymous Governorate of the Kurdistan Region of Iraq. Watered by the Tanjaro

River, it extends along a main north-west/south-east axis, stretching between the urban centres of Arbat and Halabja, along the western flank of the Zagros Mountain chain (Fig. 1.1). The plain measures approximately 50 kilometres from east to west and 25 kilometres from north to south, with an overall surface of approximately 1300 sq. kilometres.

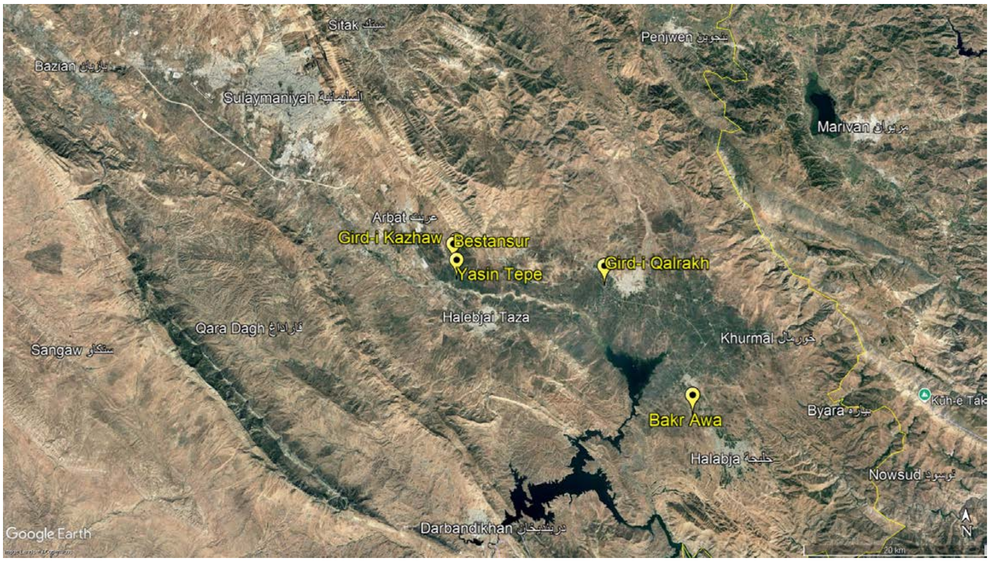
Sitak
Penjwen
Bazian
Sulaymaniyah
Marivan
Arbat
Gird-i Kazhaw
Bestansur
Yasin Tepe
Gird-i Qalrakh
Halebjai Taza
Qara Dagh
Sangaw
Khurmal
Kuh-e Tak
Byara
Bakr Awa
Halabja
Nowsud
Darbandikhan
Google Earth
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Fig. 1.1. Satellite view of the main modern cities and archaeological sites in the Shahrazur Plain mentioned in the text (© Google Earth).

While clearly delimited by distinct and remarkable natural features, the Shahrazur Plain benefits from excellent connectivity with adjacent areas, which has led to its historical role as a crucial natural crossroads. Its south-western margin is defined by a substantial physical barrier, represented by the Binzird Dagh Range and, further west, by the Qaradagh Range. Nevertheless, several mountain passes, such as those at Tasluja and Baziyan, facilitate westward passage towards Chamchamal, Kirkuk, and ultimately the Tigris basin. To the north-west, the plain significantly narrows into a valley leading to Sulaymaniyah and then forming a natural corridor, bordered by the Azmar Range, the Piramagrun and the Beranan Mountains, heading to the area of the Dukan Lake. On its eastern side, the plain is delimited by the Hawraman Range, where mountain passes near Khurmal or, further north, near Penjwin, provide access to the Iranian Zagros and the Iranian highlands. Lastly, while the artificial reservoir at Darbandikhan now marks the southern margin, the Sirwan/Diyala river valley further south remains readily accessible via a series of passes, most notably the one on the Qaradagh at Paikuli, leading directly to Central and Southern Mesopotamia.[1]

Therefore, geomorphologically and strategically, the Shahrazur Plain can confidently be regarded as a remarkable natural crossroads in the Western Zagros area and a major transit region between the Iranian Plateau and the Mesopotamian floodplains, a role that it consistently played throughout antiquity.[2]

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[1] Geographical features of the Shahrazur Plain are discussed in ALTAWEEL *et al.* 2012, 2–4. On the hydrography of the area and the evolution of water management practices there, see MÜHL *et al.* 2018.

Systematic archaeological investigations in the Shahrazur Plain commenced from the mid-20th century CE onwards.[3] Early activities in the 1940s included a broader survey of known archaeological sites across Iraq, carried out on behalf of the Iraqi Directorate of Antiquities and Heritage, as part of the initiative to compile the Atlas of Archaeological Sites in Iraq. Subsequently, in the late 1950s, significant archaeological work, including surveys and rescue excavations, was undertaken in the south-eastern sector of the plain in anticipation of the construction of the Darbandikhan Dam and its reservoir.

Following these initial undertakings, a renewed impetus for archaeological research in the Shahrazur Plain emerged from 2003 onwards, significantly driven by the activities of the Directorate of Antiquities and Heritage in Sulaymaniyah. A pivotal development occurred in 2009 with the commencement of the 'Shahrizor Survey Project' (SSP).[4] This international collaborative effort initiated a comprehensive archaeological survey across the entire plain, employing a multidisciplinary approach[5] that subsequently paved the way for more recent archaeological investigations in the area.

During the Sasanian period, the area of the Shahrazur Plain was known as Syārazūr.[6] Later Islamic sources, such as Ibn al-Faqīh al-Hamadānī (c. 869–950 CE) and Ḥamdallāh Mustawfī Qazvīnī (c. 1281–1340 CE), report that the main urban centre of the area (still thriving in the Islamic period) was founded by King Kawād I and was also known with the name *Nīm-Rāh* or *Nīm-az-Rāh*—i.e. 'midway'—due to its strategic position approximately halfway along the ceremonial route taken by Sasanian kings from their capital at Ctesiphon to the important royal fire temple of Ādur-Gušnāsp in Ādurbādagān.[7]

In 1840, Sir Henry Rawlinson proposed that the imposing archaeological site of Yasin Tepe[8] could potentially be retained as the location of that significant Sasanian and Islamic urban centre[9]—a hypothesis that nevertheless remains a subject of scholarly debate.[10]

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[2] For an historical overview of the Shahrazur Plain, from the second half of the 3rd millennium BCE to the first decades of the 19th century CE, see ALTAWEEL *et al.* 2012, 8–18.

[3] For a summary of past archaeological research in the Shahrazur Plain, see ALTAWEEL *et al.* 2012, 18.

[4] ALTAWEEL *et al.* 2012.

[5] On paleoenvironmental research in the area, see ALTAWEEL *et al.* 2012, 4–8; MARSH *et al.* 2018; MARSH, ALTAWEEL 2020. On the magnetometric prospections carried out in the Shahrizur Plain in the frame of the 'Shahrizor Survey Project', see MÜHL, FASSBINDER 2015; SCHEIBLECKER *et al.* 2018.

[6] GYSELEN 2019, 205.

[7] MINORSKY, BOSWORTH 1997, 218.

[8] See below.

[9] RAWLINSON 1840, 98, 101–102.

[10] Rawlinson reiterated this identification in THOMAS, RAWLINSON 1867, 299. Conversely, in a paper on the remains of the allegedly Sasanian bridge of Pird-i Kinachan on the left bank of the Sirwan River, south-west of Halabja (documented shortly before its flooding by the Darbandikhan reservoir), F. Safar argued that the aforementioned royal Sasanian route crossed this bridge, thereby leading from Bakr Awa to Khurmal. Safar therefore considered the archaeological mound at Khurmal a more

To date, no relevant Sasanian material has been recovered from Yasin Tepe. Conversely, the wider Shahrazur Plain demonstrates significant evidence of Sasanian occupation.[11] This is evident at the uppermost levels of the nearby Neolithic site of Bestansur (currently excavated by a team from the University of Reading),[12] and through more remarkable Sasanian archaeological remains brought to light at the sites of Gird-i Kazhaw and Gird-i Qalrakh (Fig. 1.1).

Archaeological investigations at Gird-i Kazhaw were undertaken by a German team from the Ludwig-Maximilians-Universität of Munich between 2015 and 2016.[13] Located at the northwestern margin of the Shahrazur Plain, approximately 25 kilometres from Sulaymaniyah and 7 kilometres southeast of Arbat, adjacent to the village of Bestansur, the site of Gird-i Kazhaw has yielded significant Late Sasanian evidence. Excavations specifically date the re-occupation of both mounds to the reign of King Kawād I or the early 6th century, a chronology strongly supported by a coin discovered within the fortress wall.[14]

At Mound A, a large, partially excavated pillared building has been interpreted as possibly religious in character, suggesting a Christian church or monastery, based on architectural parallels and the presence of potsherds with cross-shaped impressed motifs. Alternatively, the excavators have also proposed a function related to commercial activities, such as a caravanserai or customs station. This interpretation considers the important role of many Christian communities in Late Antiquity's long-distance trade and the site's strategic location near the Bestansur spring, which would have offered shelter to traversing merchants and control over trade routes.

Furthermore, structures uncovered at Mound B of the same site have been interpreted as a fortified building, likely a small fortress. Designed to host a military garrison and secure control over the nearby perennial spring of Bestansur, the fortress yielded Sasanian glass sherds and vessels,[15] confirming its Sasanian date and use.

Further east, at the site of Gird-i Qalrakh, located south of the town of Said Sadiq, archaeological work by a German team from the University of Frankfurt between 2016 and 2017 has revealed significant evidence of Early Sasanian occupation.[16] This occupation, particularly findings from Area B on the mound's summit, points towards a significant and centralized textile production, potentially associated with craft and commercial activities. Indeed, the Sasanian occupation in Area B at the site

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plausible candidate for the ancient *Nīm-Rāh/Nīm-az-Rāh* than Yasin Tepe; see SAFAR 1974 and also MINORSKY, BOSWORTH 1997, 218; ALTAWEEL *et al.* 2012, 15–16. For a broader discussion on this major Sasanian and Islamic city and the debate surrounding its localisation, see the contributions by B. Salih and G. Terribili, C.G. Cereti and B. Faticoni, and C. Marchetti in the present volume.

[11] For a recent discussion on the remarkable Sasanian presence in the Shahrazur Plain, see ABIAN, MAFI 2023. These scholars have also published on the archaeological evidence of the Sasanian period across Iraqi Kurdistan more broadly; see ABIAN, MAFI 2022.

[12] See, e.g., the evidence represented by the pottery assemblage studied by COOPER *et al.* 2012, 160–162.

[13] TAMM *et al.* 2017; 2018; TAMM 2020.

[14] TAMM *et al.* 2017, 16, fig. 8; 2018, 133, fig. 24; TAMM 2020, 426, fig. 4.

[15] TAMM *et al.* 2017, 16, fig. 9; 2018, figs. 18, 33; TAMM 2020, figs. 3, 5.

[16] HADDAD, TAMM 2019; WICKE 2020; 2021.

comprises at least two discernible building phases, the latest of which was represented by a substantial mudbrick structure (Building I). Inside that, a burnt standing vertical loom was discovered along one wall, accompanied by 13 loom weights of secondarily baked clay. Alongside these, a worn stamp-seal and sixteen fragmentary clay seal impressions were found, some bearing impressions of textiles, thus confirming the local production of fine textiles, perhaps even silk. [17] Intriguingly, the iconography on these sealings is not of classical Sasanian style, suggesting they might be older heirlooms or of foreign origin, despite their clear stratigraphic association with Late Sasanian pottery and the building's context. This compelling evidence, therefore, seems to point towards a non-domestic, commercial, and institutional economic setting for textile production at the site.

Based on findings such as the discovery of two Sasanian seals at Bakr Awa, A. Tamm has advanced the hypothesis that the Shahrazur Plain served as a significant trading hub along the Silk Road in Late Sasanian period. He envisions a network designed to promote, regulate, and safeguard these extensive commercial activities. This network likely encompassed fortified settlements overseeing mountain passes (such as Merquly, Sitak, and Baziyan) and strategically important (sensitive) locations within the plain, potentially exemplified by the small fortress at Gird-i Kazhaw.[18]

G.M.

1.2. Report on the 2023 MAIKI excavations at Yasin Tepe

Within such an international framework of archaeological research on the Sasanian period in the Shahrazur Plain, the MAIKI – Missione Archeologica Italiana nel Kurdistan Iracheno (Italian Archaeological Mission in Iraqi Kurdistan) initiated its activities at Yasin Tepe in the autumn of 2022, under a four-year agreement with the General Directorate of Antiquities of the Kurdistan Regional Government and the Slemani Antiquities and Heritage Directorate.[19]

The archaeological site of Yasin Tepe is located in the western part of the Shahrazur Plain and it represents the most prominent archaeological mound in the area, with an overall size of approximately 40 hectares. The area around the site is extremely rich in water, not only by virtue of the presence of the Tanjaro river but also thanks to the network of canals derived from the nearby perennial spring of Bestansur (Fig. 1.2).

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[17] HADDAD, TAMM 2019, figs 5–6, 10–12; WICKE 2020, figs 6, 9a–b; 2021, figs 10–13.

[18] HADDAD, TAMM 2019, 781–784; TAMM 2020, 429.

[19] Activities of the MAIKI were sponsored by MAECI – Ministero degli Affari Esteri e della Cooperazione Internazionale (Italian Ministry of Foreign Affairs and International Cooperation), and by Sapienza University of Rome (Since 2018 MAIKI is one of Sapienza University of Rome's flagship archaeological projects: 'Grandi Scavi').

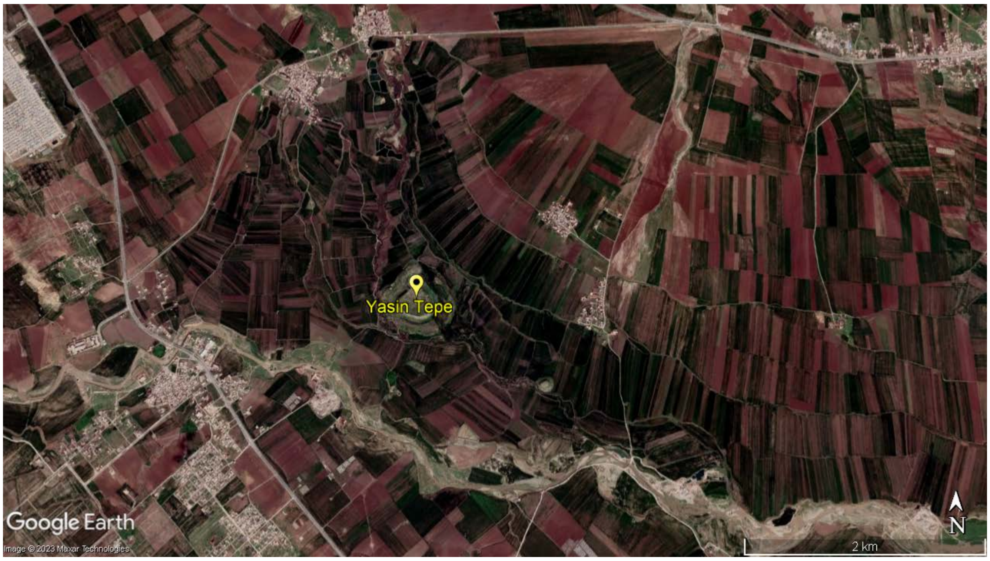

Fig. 1.2. Satellite view of the area around the archaeological site of Yasin Tepe. The course of the Tanjaro River is visible at south (© Google Earth).

The main mound at Yasin Tepe—*i.e.* the so-called 'acropolis'—measures about 350×340 metres and features an average height of about 20 metres above the plain. The surrounding mound—lower in profile and therefore labelled as the 'lower town'—measures 700×630 metres approximately (Fig. 1.3).

According to the results obtained by past and recent research activities at the site, the 'acropolis' possibly featured four gateways. Architectural structures (built with stones and mortar) are nowadays visible only at the north-western gate and are likely ascribable to the Islamic period. The 'acropolis' is surrounded by a wide ditch (from 25 to 30 metres), probably to be interpreted as a defensive moat. A similar feature is also attested at the site of Bakr Awa, where it is dated to the Islamic period.[20] Therefore, the presence of a moat has been recently considered as a typical defensive feature of large Islamic-period settlements in the Shahrazur Plain.[21] The outer 'lower town' displays an uneven morphology and altimetry, partly due to the extremely invasive agricultural activities carried out in the area in modern times.

After some very brief and limited excavations by the Polish-born American Assyriologist E.A. Speiser,[22] modern archaeological research at Yasin Tepe started in 1973, when a team from the former Iraqi Directorate General of Antiquities (DGA) conducted excavations at the site, focusing on the 'acropolis' (where seven 10×10 metres soundings were excavated) but also carrying out a sounding at the northwestern part of the lower town. A remarkable number of potsherds of the so-called 'Kurdish Ware' of the Ottoman period was found along with some structures.

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[20] MIGLUS *et al.* 2013, 68, 79.

[21] NISHIYAMA 2020, 52.

[22] SPEISER 1927, 10–11.

A small hoard was also reported, comprising several gold coins dated between the 4th and the very beginning of the 6th centuries of the Hijra.[23]

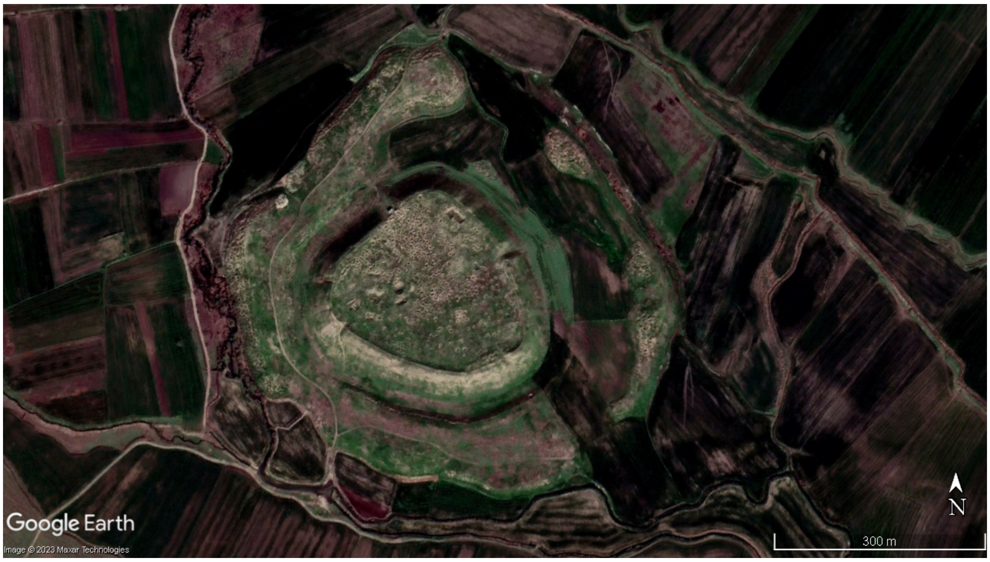

Fig. 1.3. Satellite view of the 'acropolis' and the surrounding 'lower town' at Yasin Tepe (© Google Earth).

After another brief campaign by the Iraqi DGA in 1978, when some layers dated to the Assyrian period were encountered under major Islamic levels,[24] excavations at Yasin Tepe were only resumed after two decades, in 1999, on behalf of the Slemani Directorate of Antiquities, bringing to light Islamic-period occupational phases and Islamic-period structures and pottery at the north-eastern and north-western sector of the 'acropolis'.[25]

Twenty years later, between 2009 and 2011, a systematic survey was carried out at Yasin Tepe and the surrounding area in the frame of the international Shahrizor Survey Project (SSP). The results demonstrated that occupation at the site of Yasin Tepe (labelled as SSP 2) probably started in the Halaf period and continued without major discontinuity until the Islamic period.[26]

In 2015, a team from the University College of London in Qatar (UCL Qatar), headed by J.C. Carvajal López, opened two test trenches at the site. The study of the excavated pottery assemblage established a chrono-stratigraphic sequence between the 9th and the 17th century CE.[27]

The most recent archaeological activities at the site are those carried out by the Yasin Tepe Archaeological Project (YAP), active since 2015 and directed by Shin'ichi

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[23] Hijara 1975; Anonymous 1975, 66–67.

[24] Anonymous 1979, 159.

[25] Ma'rouf 1999.

[26] Altaweel *et al.* 2012, 22–27.

[27] See Anonymous 2017. The activities were also reported by Ahmad 2018, 59, who also had the opportunity to work on the pottery from UCL Qatar team's excavations at the site (personal communication, October 2023) and included the results in his PhD Dissertation; see Ahmad 2020.

Nishiyama of the Chubu University in Japan with the participation of colleagues from the Lebanese University of Beirut. Among several archaeological discoveries at the site and besides a preliminary survey revealing occupation phases as early as the Neolithic and Chalcolithic periods, the Yasin Tepe Archaeological Project has brought to light, in particular, remarkable evidence from the Iron Age at the south-eastern portion of the 'lower town'.[28]

In 2022, an agreement was signed between the MAIKI and the General Directorate of Antiquities of the KRG for a four-year (2022–2025) project of excavations at Yasin Tepe and investigations on the Arsacid and Sasanian landscape of the Sulaymaniyah province.[29]

The first preliminary campaign at Yasin Tepe was carried out by the MAIKI in October 2022.[30] On that occasion, limited fieldwork focused on an area at the north-western sector of the 'acropolis', where a trench had been excavated in 1999 by K.N. Ma'rouf on behalf of the Slemani Directorate of Antiquities. Activities consisted in an overall cleaning of the past excavation area and the previously discovered structures, with the aim to retrieve portions of the stratigraphic sequence attested there.

In autumn 2023, MAIKI continued its activities at the site of Yasin Tepe, on the basis of permissions granted by the General Directorate of Antiquities of the Kurdistan Regional Government and the Slemani Antiquities and Heritage Directorate.[31] The aim of the autumn 2023 MAIKI campaign at Yasin Tepe was to start research on the topographic, stratigraphic, and (possibly) functional relationship between the imposing fortification wall encircling the uppermost margin of the mound and the Islamic-period structures brought to light at one of the trenches excavated by K.N. Ma'rouf at the north-western sector of the 'acropolis' in 1999 (see above).[32] Therefore, the area selected for excavations—labelled as 'Area A', measuring 3×10 metres (with the main axis oriented WSW-ENE), and delimited by P1 (at south-west), P2 (at north-west), P3 (at north-east) and P4 (at south-east)—was placed between the uppermost margin of the western side of the 'acropolis' and the aforementioned trench excavated in 1999 (Fig. 1.4). Due to its peculiar position, the surface of Area A featured a sharply sloping profile at the beginning of the excavation, thus complicating the excavation procedures.

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[28] TSUNEKI *et al.* 2016, 130–132; NISHIYAMA 2020; NISHIYAMA, YAMADA 2023.

[29] Between the end of 2022 and the beginning of 2023, the Directorship of the YAP – Yasin Tepe Archaeological Project – and the Directorship of the MAIKI – Italian Archaeological Mission in Iraqi Kurdistan – reached an official agreement with the General Directorate of Antiquities of the KRG and the Slemani Directorate of Antiquities, establishing that each archaeological team was granted excavation permissions at specific areas of the site, therefore avoiding any overlapping.

[30] On that occasion, field activities were coordinated by B. Faticoni.

[31] The members of the MAIKI team would like to express sincere thanks to Keifi Mustafa Ali (Director at the General Directorate of Antiquities of Kurdistan) and Hussein Hama Gharib Hussein (Director at the Slemani Antiquities and Heritage Directorate) for their steady support during the activities carried out at Yasin Tepe. Our heartfelt thanks also go to Nawshirwan Aziz (Principal Archaeologist at the Slemani Antiquities and Heritage Directorate) and Hawzhen Jalal Hama Rashid (Representative of the Slemani Antiquities and Heritage Directorate) for their precious assistance and collaboration. Deep gratitude is also addressed to Nasr Hama Hassan, the driver assigned to our team by the Directorate of Antiquities of Sulaymaniyah. Last but not least, we would like to acknowledge the collaborative attitude of our main workmen: Amir Hama Rashid, Sirwan Abdullah Mohammad and Barzan Hama Mahaddin, as well as the other workmen who occasionally took part in the excavations, when necessary. We would like to take this opportunity to extend our thanks to our host at Bestansur, Amir Hama Rashid, and his family, for their kindness.

[32] Field activities took place at the site from Monday 25th September to Thursday 19th October and involved the following participants: Hawzhen Jalal Hama Rashid, Representative of the Slemani Antiquities and Heritage Directorate; Giulio Maresca, Archaeologist and Field Director of the MAIKI;

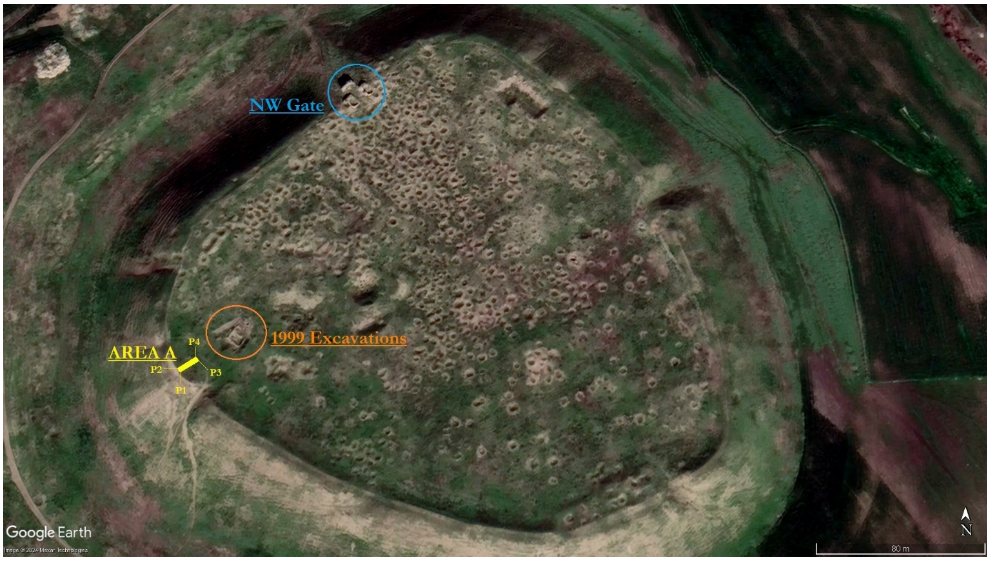

Fig. 1.4. Satellite view of Area A (in yellow), the nearby trench excavated in 1999 (circled in orange) and remains of the north-western gate (circled in light blue) (© Google Earth).

Stratigraphic excavations at Area A started with the removal of the topsoil (SU 0), a dark-brown layer of humified soil mixed with centimetric and pluri-centimetric stones. This uppermost stratigraphic unit (with a sloping surface) features a variable thickness at the excavation area, ranging from 2 centimetres (at the north-eastern margin of Area A) to approximately 15 centimetres (at the south-western margin of Area A).

The excavation of this uppermost layer, showing evident traces of burning (probably due to a recent fire set in the area in the frame of contemporary agricultural activities) and a remarkable quantity of roots, brought to light several animal bones (mainly belonging to caprids) and a total number of 127 pottery fragments with an overall weight of 2.173 kilograms.[33] Of the aforesaid 127 pottery fragments, only 36 potsherds were retained as 'diagnostic' to be further processed

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Jacopo Bruno, Archaeologist and Pottery Specialist of the MAIKI; Giulia Gentile, Junior Archaeologist, Francesco Gabriele Vasile, Junior Archaeologist. C.G. Cereti (Director of the MAIKI) and G. Terribili (Deputy-director of the MAIKI) did not take part in the field activities but were constantly informed about the ongoing field activities and were actively involved in the development of excavation strategies.

[33] Pottery fragments and other archaeological materials brought to light during the autumn 2023 MAIKI excavations at Yasin Tepe are still under study and only a small part of those has already been processed and analysed. Therefore, only a few hints to the pottery from the site are given in the present report, by J. Bruno (see below).

for in-depth study and analyses.[34] Based on its stratigraphic position, its features and the preliminary analysis of the recovered ceramic materials, SU 0 can be tentatively interpreted as the result of natural humification processes slowly occurred—until the contemporary period—at the uppermost portion of the natural deposit gradually formed above the old structures attested in the area.

Ther removal of the topsoil SU 0 at Area A uncovered the sloping surface of two different stratigraphic units (Fig. 1.5). A layer of partly-humified brown soil, featuring a friable consistency and mixed with sporadic centimetric and pluri-centimetric stones, was uncovered at the upper portion (at SW) of the excavation area (SU 1). SU 1 is characterised by a variable thickness ranging from 8 to 35 centimetres and the presence of several roots. The excavation of SU 1 yielded several faunal remains (mainly belonging to caprids), a few glass fragments, one fragment of a stone tool and 938 pottery fragments (only 255 classified as 'diagnostic') featuring an overall weight of 21.355 kilograms.

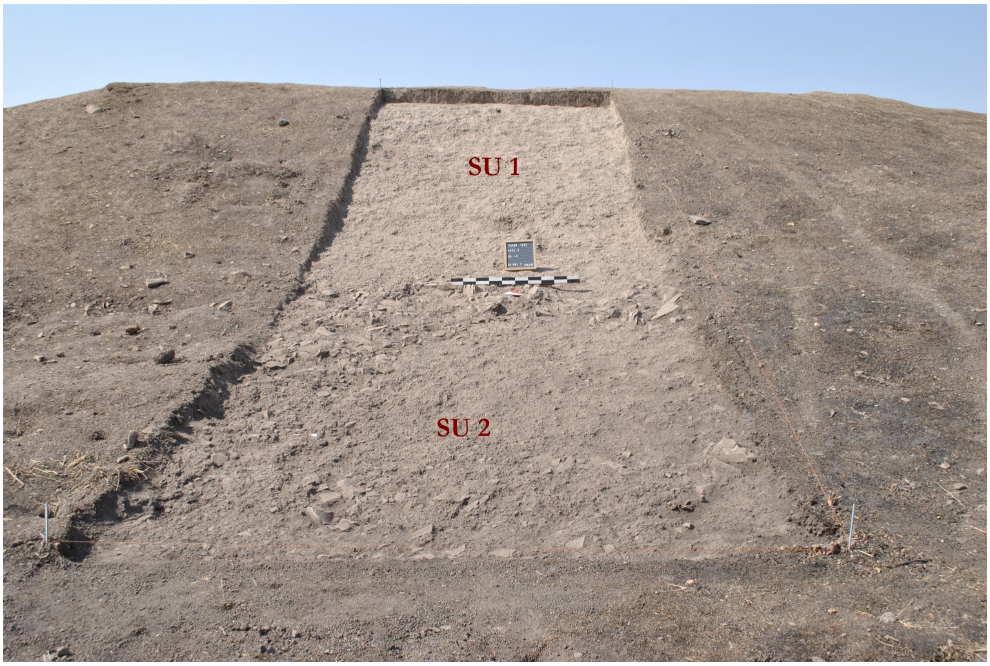

Fig. 1.5. Panoramic view of Area A after the removal of SU 0. The surface of SU 2 is clearly visible in the foreground while SU 1 can be seen in the background. View from NE (© MAIKI; photograph by G. Maresca).

Based on its stratigraphic position, its features and the preliminary study of the recovered archaeological materials, SU 1 can be preliminarily interpreted as the result of slow humification processes partly occurred—until the modern period—at the lower portion of the natural deposit gradually formed above the old structures attested at the area.

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[34] Pottery fragments considered as 'diagnostic' are potsherds with informative potential about morpho-typological, technical and manufacturing pottery features. Diagnostic potsherds mainly include whole profiles, rims, necks, bases or handles; fragments of walls carrying decorative motifs, or characterised by a specific surface treatment or delivering any other information about manufacturing processes are also included in the same category (see the contribution by J. Bruno below).

Conversely, the removal of SU 0 at the lower (north-eastern) portion of Area A revealed the presence of a different stratigraphic unit, SU 2, partly covering SU 1 (for an overall surface of approximately 4.4×3 metres) and therefore later than the latter. SU 2 is a layer of partly-humified brown soil, featuring a friable consistency and densely mixed with stones having variable dimensions (ranging from a few centimetres to a few decimetres) and very sharp edges. The excavation of SU 2—featuring a thickness ranging from 11 to 22 centimetres—yielded a fragment of a glass bangle, a fragment of worked bone and 48 pottery fragments (27 classified as 'diagnostic') featuring an overall weight of 1.414 kilograms. Based on its stratigraphic position and its features, SU 2 can be interpreted (at least at a preliminary stage) as the result of a modern and artificial deposit of stones over the lower part of the surface of SU 1 (for some reasons difficult to be established).

The gradual removal of SU 1 and SU 2 brought to light the surface of the underlying SU 3, characterised by a sloping profile (as the other stratigraphic units above it). Featuring a very variable thickness between 15 and 70 centimetres, SU 3 is a compact layer of clayey soil of greyish/light brown colour mixed with centimetric and pluri-centimetric stones and clumps of clay (often with regular squared margins). By virtue of the abundant presence of clay clumps of variable dimensions, it can be hypothesised that the stratigraphic unit at issue represents the possible result of the slow and gradual decay (due to phenomena of erosion and leaching) of the uppermost portion of the collapse layer of mudbrick or *pisé* architectural features related to the perimetral fortification of the site.

The excavation of SU 3—entirely investigated only at the upper portion of Area A and within a small test-trench excavated at the northern corner of the latter (see below)—yielded the following archaeological materials: several faunal remains (mainly belonging to caprids), some fragments of glass vessels, a fragment of a glass bangle, a fragment of a miniature metal vessel, a metal arrowhead, some slags and 862 pottery fragments (491 classified as 'diagnostic') featuring an overall weight of 15.335 kilograms.

SU 3 is remarkably disturbed by the presence of several roots and it is also cut by a small artificial canal with a slightly concave profile and an NWW-SEE axis, irregularly running roughly at the middle of Area A (SU 6). The small canal at issue, featuring a maximum attested length of approximately 3 metres, a maximum width of c. 0.60 metres and a maximum depth of c. 0.15 metres, was probably dug in the frame of modern agricultural activities carried out in the area. In all likelihood, the canal was cut at the level of SU 1, although it was not possible to discern its presence there due to the close similarity between its filling layer (SU 5) and the latter stratigraphic unit. Indeed, SU 5 is a layer of partly-humified brown soil, featuring a friable consistency and mixed with sporadic centimetric stones. The excavation of this stratigraphic unit only yielded some faunal remains (a few bones belonging to caprids).

As already mentioned, SU 3 was investigated only at the upper portion of Area A (see below) and within a small test-trench excavated at the northern corner of the latter. The trench at issue, labelled as 'TR-A' = Trench A, measures 1.5×3 metres (its main axis is oriented WSW-ENE) and was excavated in order carry out a more in-depth investigation of the archaeological deposit underlying SU 3 (reaching a depth of –1.35 metres from the ground level in that area).

The gradual removal of SU 3 revealed the presence of a somewhat different stratigraphic unit near the southern corner of Trench A (SU 7), namely a compact layer of clayey soil of greyish/light brown colour mixed with sub-centimetric, centimetric and pluri-centimetric stones. Unfortunately, SU 7 is very similar in colour, texture and consistency to the surrounding SU 3 and was therefore recognised only at a lower level, when it became evident that it represented the filling layer of a nearly circular pit with a concave bottom (SU 8), likely excavated at the level of the surface of SU 3 and featuring a maximum depth of 0.70 metres.

The excavation of SU 7 only yielded one pottery vessel, i.e. a nearly intact medium-sized jug (only one fracture runs along the base of the neck and at the base of the handle). The jug (id. no. YT23A7_1) features a globular body on a flat base, a short neck and one vertical handle; the internal surface is entirely covered with a layer of bitumen and some traces of the latter substance are also visible leaking on the external surface of the vessel.[35]

The removal of SU 3 and SU 7 at TR-A brought to light the surface of the underlying SU 9, disturbed by the presence of several roots as well as partly cut (c. 15 centimetres) by the aforementioned pit SU 8. Featuring a variable thickness between 20 and 36 centimetres, SU 9 is a compact layer of clayey soil of greyish/light brown colour mixed with centimetric and pluri-centimetric stones. The excavation of SU 9 yielded some faunal remains (mainly belonging to caprids) and 327 pottery fragments (only 81 classified as 'diagnostic') featuring an overall weight of 7.990 kilograms.

The removal of SU 9 at TR-A brought to light the surface of the underlying SU 10, disturbed by the presence of several roots. Featuring a variable thickness between 15 and 28 centimetres, SU 10 is a compact layer of clayey soil of light brown colour mixed with centimetric stones. The excavation of SU 10 yielded some faunal remains (mainly belonging to caprids) and 243 pottery fragments (only 74 classified as 'diagnostic') featuring an overall weight of 4.359 kilograms.

The removal of SU 10 revealed the surface of SU 11, i.e. the deepest stratigraphic unit encountered at TR-A during the 2023 campaign. Unfortunately, SU 11 was not investigated due to reason of time and only its surface was analysed. It looks like a compact layer of clayey soil of yellowish/light brown colour mixed with pluri-centimetric stones. Several unglazed ceramic fragments and a few glazed ceramic fragments were also visible on its surface.

Pending further analysis of pottery from SU 9 and SU 10, and given the absence of archaeological material from SU 11, these stratigraphic units can be tentatively interpreted as three superimposed ground levels (paleo-surfaces). These levels appear to have formed naturally over a chronologically uncertain timespan, though likely between the Middle and Late Islamic periods.

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[35] See below, Fig. 10.

At the uppermost (south-western) portion of Area A, instead, the removal of SU 3 revealed an entirely different stratigraphic sequence. Excavations brought to light the surface of the underlying SU 4, characterised (as the other stratigraphic units above it) by a markedly sloping profile from SW to NE (Fig. 1.6).

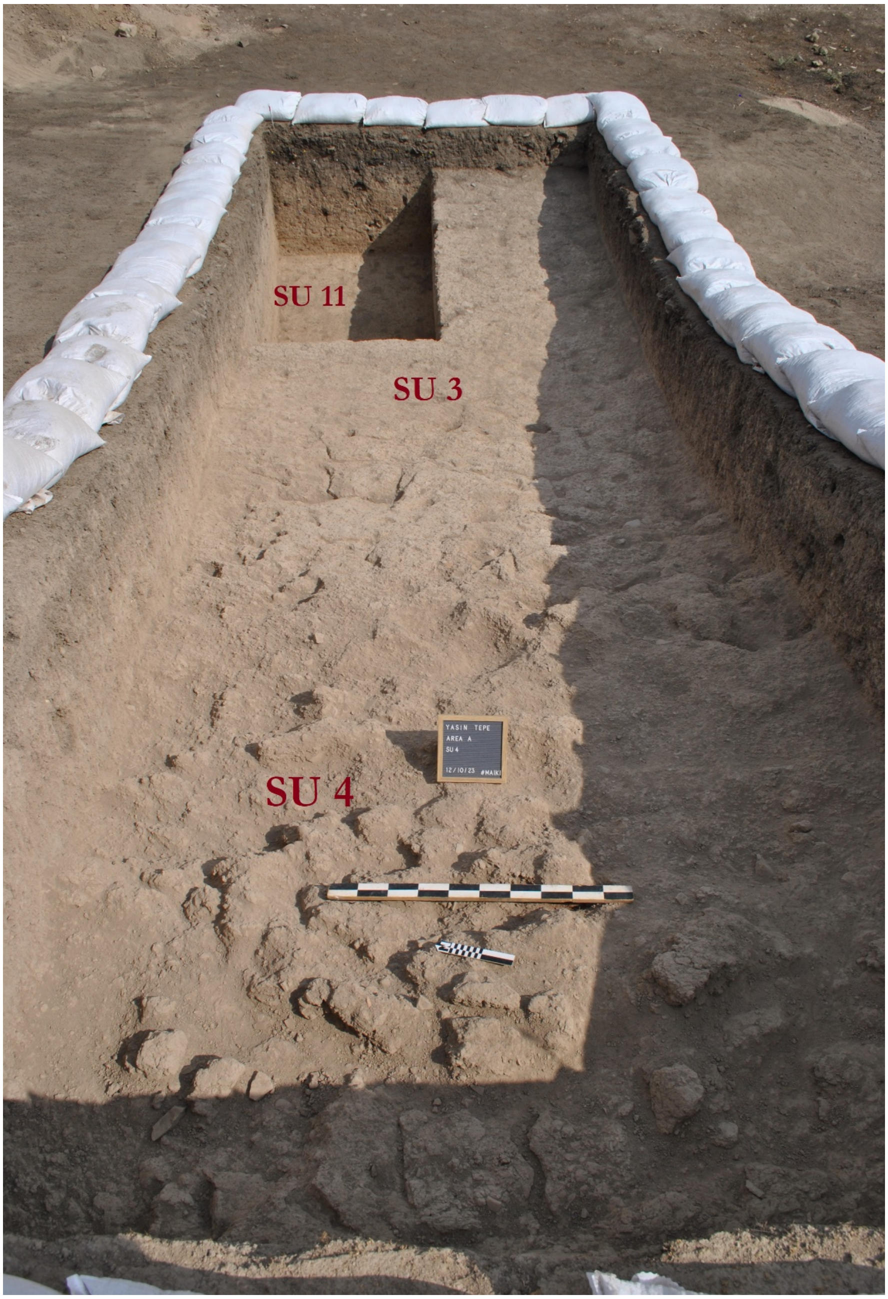

Fig. 1.6. Phase of excavation at Area A. The surface of SU 11 is visible at the bottom of TR-A (in the background, on the left); the surface of SU 3 can be seen in the remaining lower portion of Area A; the surface of SU 4, with its fragments of mudbricks, is attested in the upper portion of the area. View from SW (© MAIKI; photograph by G. Maresca).

Reaching a maximum thickness of 82 centimetres, SU 4 is an incoherent layer of clayey soil of greyish/light brown colour mixed with centimetric and pluri-centimetric stones and a huge number of fragments of square clay clumps of variable dimensions. It can be hypothesised that the stratigraphic unit at issue represents the collapse layer of earthen architectural features related to the perimetral fortification of the site, rolled down the slope and gradually accumulated in the area downward.

The excavation of SU 4—entirely investigated only at the uppermost portion of Area A—yielded the following archaeological materials: faunal remains (mainly belonging to caprids), several fragments of mudbricks, some fragments of stone tools, a loom weight and 883 pottery fragments (only 335 classified as 'diagnostic') featuring an overall weight of 18.691 kilograms.

The removal of SU 4 at the uppermost portion of Area A revealed—at its south-western margin—two layers of clayey soils, SU 12 and SU 13, appearing as two parallel 'kerbs' (Fig. 1.7).

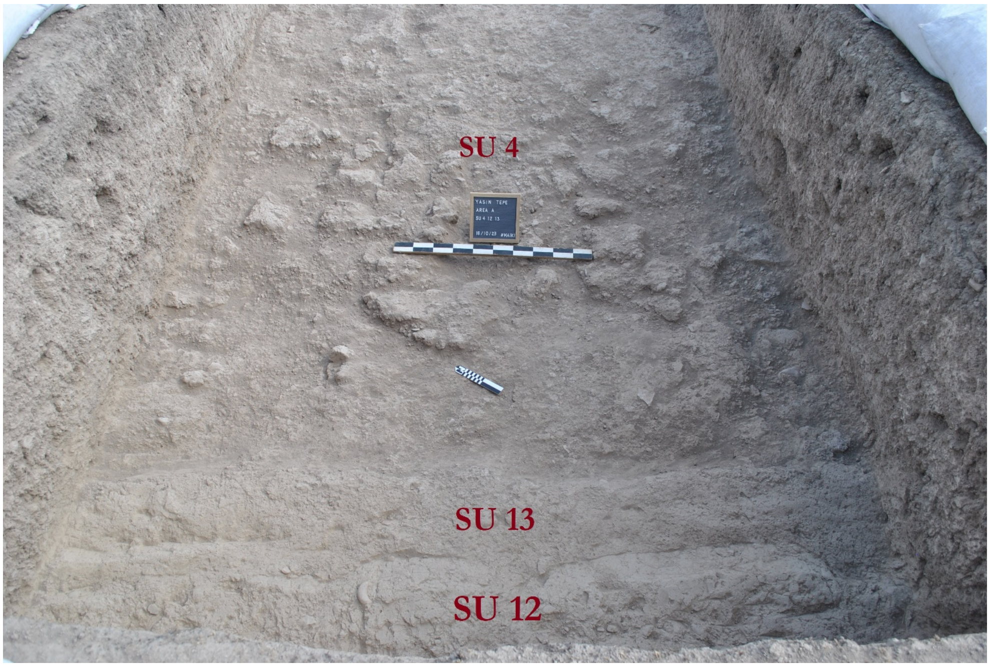

Fig. 1.7. Detailed view (from SW) of the upper portion of Area A during excavations. SU 4 is still attested and visible in the background, while the removal of SU 4 further up has revealed the surface of SU 12 and SU 13 (© MAIKI; photograph by G. Maresca).

Unfortunately, SU 13 was only excavated to a very limited extent due to time constraints. This layer of light grey, clayey soil, mixed with centimetric and pluri-centimetric stones, exhibits a very compact consistency (notwithstanding the presence of some roots) and rests against SU 12. The partial excavation of SU 13 yielded a few faunal remains and 113 pottery fragments (25 classified as 'diagnostic') with an overall weight of 2.427 kilograms.

Conversely, only the surface of SU 12 was analysed, as it was not excavated. It appears to be an extremely compact and hard layer of light grey, clayey soil, mixed with centimetric and pluri-centimetric stones. A few pottery fragments (mainly unglazed common ware) were observed on its surface.

Despite the very preliminary character of the archaeological investigation of SU 12 and SU 13, these stratigraphic units can be tentatively interpreted as two solid and massive *pisé* features related to the site's fortifications. The spatially limited excavation area, however, has prevented us from clearly understanding whether they merely represent the lower, massive foundation 'core' of the imposing defensive structure presently encircling the mound's uppermost margin, or, alternatively, constitute an older phase of the 'acropolis' fortification wall.

Therefore, one of the main aims of the following MAIKI excavation campaigns at Yasin Tepe will be to establish with greater certainty the stratigraphic, functional, and chronological relationship between these *pisé* features and the upper layers of the defensive wall. To achieve this, Area A should be considerably enlarged in the future at its south-western margin.

G.M.

1.3. Ceramic analysis: methodology and preliminary observations from the 2023 excavations at Yasin Tepe

Archaeological investigations previously conducted at the 'acropolis' of Yasin Tepe have yielded, in terms of published results, an extremely limited amount of information concerning the ceramic material recovered.[36] As such, no prior studies are currently available that may offer internal comparative frameworks or established methodological baselines.

During the first excavation campaign of the MAIKI project at the site, conducted in autumn 2023, it was therefore possible to develop a data collection and analysis methodology tailored to the aims of the mission and suited to ceramic analysis. The adopted protocol draws upon guidelines already tested in other archaeological contexts in the Near East and Central Asia, with the aim of integrating the study of the Yasin Tepe ceramics within a broader framework of regional and supra-regional standards.[37] This methodology is intended to serve as a robust foundation for future research in the area.

Taking into account the nature of the site (multi-phase, medium-to-large in size, and so far, only partially excavated) and the type of investigations currently undertaken or planned by MAIKI (stratigraphic soundings and, prospectively, open-area excavation), the ceramic analysis was structured around the following objectives: morphological analysis and preliminary classification of the main ceramic categories; quantification of the finds according to class; interpretation of the data to support contextual analysis and a preliminary assessment of the assemblage's function.

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[36] For an overview of the archaeological findings in the area and the associated literature, see AHMAD, RENETTE 2023.

[37] BRUNO 2020; PUSCHNIGG, BRUNO 2024.

The data collection phase adopted a top-down approach, starting with the context, moving on to the assemblage, and finally focusing on the individual sherd. All ceramic material retrieved during the stratigraphic excavation was collected, washed, weighed and counted. Individual sherds that were considered 'diagnostic' based on morphological characteristics (e.g. rims, handles or bases), surface treatment (e.g. decoration, slip or glaze) or production/functional indicators (e.g. traces of manufacture, use or reuse) were recorded, photographed and, where morphologically significant, drawn. The aim is to create a reference catalogue of the shapes and fabrics identified during the research.

Each recorded sherd is identified by a unique code composed of the abbreviation 'YT' (Yasin Tepe), followed by the year, the trench letter (currently Trench A: e.g., YT23A), the stratigraphic unit (SU), and the progressive number of the sherd (e.g., YT23A1.1). Complete vessels and significant finds were delivered at the end of each mission to the Sulaymaniyah Museum, while most sherds and reference collections are currently stored at the Directorate of Antiquities and Heritage in Sulaymaniyah.

Both diagnostic and non-diagnostic ceramic materials were quantified by sherd count and weight. For morphologically measurable elements (especially rims and bases), the preserved diameter was recorded in order to calculate the Estimated Vessel Equivalent (EVE).[38]

In parallel, a preliminary study of ceramic fabrics was undertaken.[39] In the initial phase, fragments were examined using a 10x hand lens, followed by digital microscopic analysis with a Dino-Lite microscope ('Edge' series, model AM7515MZTL), in order to document the technical characteristics of the ceramic body relevant to fabric classification.

The collection and description phases were as standardised as possible, drawing on established classifications[40] and colour standards (Munsell Soil Color Charts), with the aim of ensuring clarity, replicability, and integration with comparable datasets and methodologies.

Although the preliminary data analysed so far is limited in number and is mostly from the 2023 campaign, it nonetheless highlights some notable trends.

The assemblage reveals a clear dominance of closed shapes for tableware and/or storage, representing approximately two-thirds of all ceramic finds from the investigated area (Fig. 1.8).

Fabric classification allowed for the identification of ten primary groups, divided into two macro-families based on the type of inclusions (organic/mineral), the degree of purification, and surface treatment.

The most representative groups are fabrics characterised by medium-coarse body with abundant mineral and vegetal inclusions. These groups appear to have been used indiscriminately for both open and closed vessel forms.

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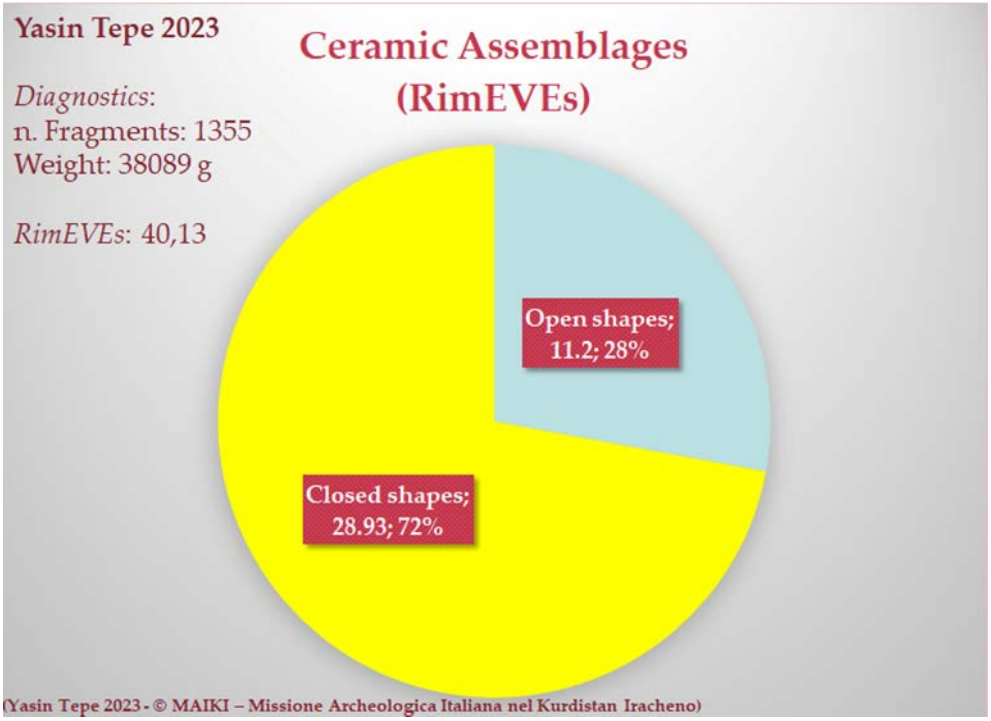
[38] ORTON, HUGHES 2013, 203–218.

[39] Following ORTON, HUGHES 2013, the term 'fabric' refers to the set of attributes related to firing temperature and conditions, inclusions, and clay composition.

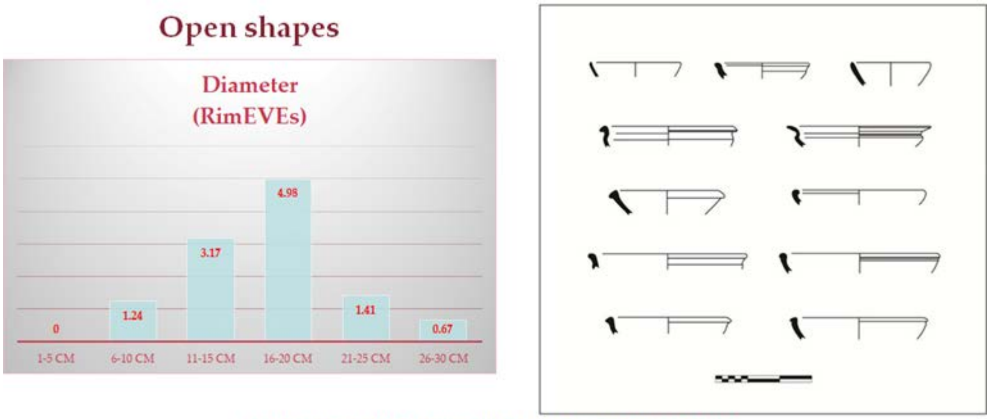
[40] E.g., MPRG 1998; 2016; ORTON, HUGHES 2013.



(Yasin Tepe 2023 - © MAIKI – Missione Archeologica Italiana nel Kurdistan Iracheno)

Fig. 1.8. Yasin Tepe. Ceramic assemblages (© MAIKI; digital elaboration by J. Bruno).

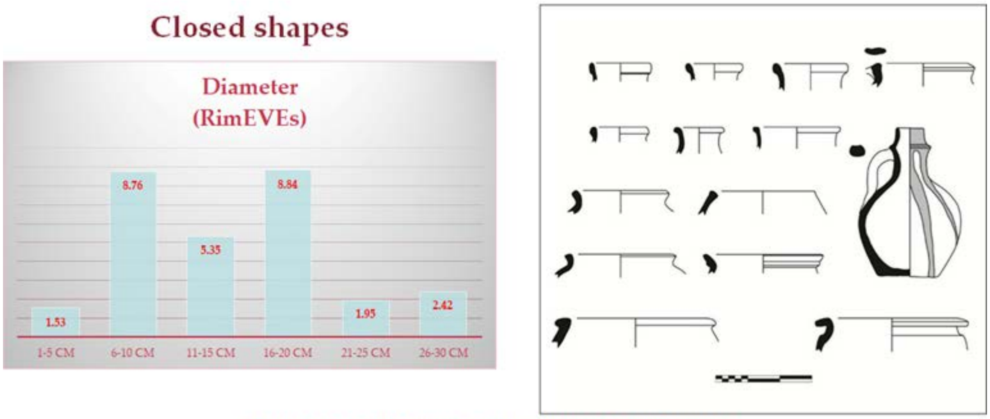
As for morphology, open shapes are primarily attested by small- and medium-sized bowls, presumably intended for individual use. Larger vessels, potentially for communal service or storage, are less frequently represented at this stage (Fig. 1.9).



(Yasin Tepe 2023 - © MAIKI – Missione Archeologica Italiana nel Kurdistan Iracheno)

Fig. 1.9. Yasin Tepe. Open shapes (© MAIKI; drawings and digital elaboration by J. Bruno).

Among closed shapes, there is a marked predominance of vessels with small rim diameters, compatible with use as table containers or for transport and storage. Large jars, with or without necks, are also attested, though in smaller numbers (Fig. 1.10). These vessels may have been used for prolonged storage or product processing.

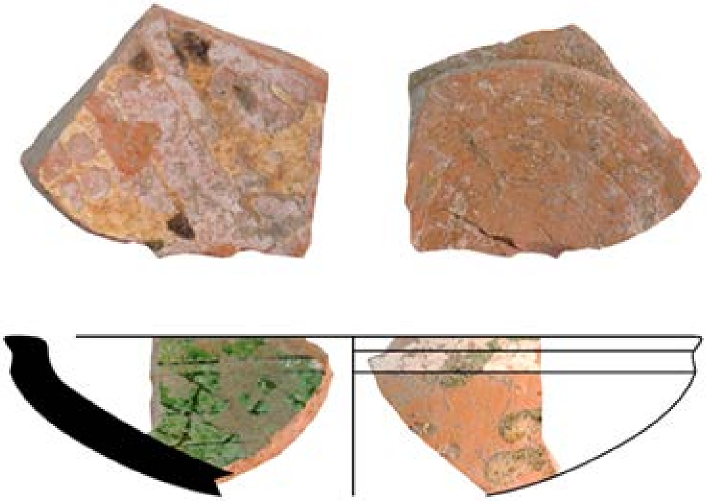


(Sampling 2023 - © MAIKI – Missione Archeologica Italiana nel Kurdistan Iracheno)

Fig. 1.10. Yasin Tepe. Closed shapes (© MAIKI; drawings and digital elaboration by J. Bruno).

Glazed pottery is extremely rare within the analysed sample: only 11 glazed fragments have been identified so far (corresponding to 0,8% of the processed material) (Fig. 1.11).

This quantitative data can be explained by the trench's proximity to the enclosure wall of the site, which is a context that is more likely to be marginal and less likely to yield 'prestige' items.[41]



(Yasin Tepe 2023 - © MAIKI – Missione Archeologica Italiana nel Kurdistan Iracheno)

Fig. 1.11. Yasin Tepe. Glazed ware (© MAIKI; drawing and digital elaboration by J. Bruno).

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[41] Nevertheless, it is worth noting that glazed ceramics represent the majority of material previously published and now exhibited at the Sulaymaniyah Museum. This discrepancy may highlight an archaeological and curatorial bias favouring more visually striking and decorated objects.

The data collected so far suggest a preliminary chronological attribution to the Middle Islamic horizon, consistent with the levels identified in earlier excavations (1973, 1999). The planned expansion of the excavation area in future seasons will allow for further refinement of the ceramic chronology and typology.

The preliminary dataset from this first campaign confirms the necessity of expanding typological and technological comparisons with other sites in the region as well as highlighting the importance of closer collaboration between archaeological missions working in the region. In this regard, a formal research collaboration is currently being established between the MAIKI ceramic team and the Institute of Iranian studies of the Austrian Academy of Sciences. The latter is presently studying Sasanian and Islamic-period ceramics from several sites across the Shahrazur Plain and surrounding areas.

The goal of this partnership is to develop a shared methodology for data collection and analysis, with the tangible outcome of improving data accessibility, creating shared reference collections, and fostering genuine integration among the various ongoing research projects in the region.

J.B.

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2. The Paikuli Monument in Its Territory

Carlo G. Cereti, Barbara Faticoni

Abstract
The first part of our work will focus on the position of the monument of Paikuli in its geographical context, with specific attention to the routes that connect the narrow valley crossed by the Çeme Qûłe torrent with the intermontane plain of Shahrazur/Syārazūr to the north-east and with the great Mesopotamian plains to the south-west. Considering the alignment of the mountain passes of the double Qaradagh chain, it is likely that Narseh started from the area of Yasin Tepe, reaching first Paikuli, then the region where Kifri stands today. The second part of the paper will present the activities carried out on the site of the Paikuli Tower during the last campaigns of the archaeological research. The final results will be presented both with regard to the research and collection of the inscribed blocks found not only in the vicinity of the tower but on the entire hill and beyond, and the results of the archaeological investigations carried out over the years in the immediate vicinity of the architectural structure.

Keywords
Sasanian empire, Landscape history, Narseh, Paikuli inscription, Iraqi Kurdistan.

2.1. King Narseh and the Paikuli monument

Why did Narseh build the monument commemorating his victory in the dynastic war that saw him challenging Wahrām III's right to the throne in what today seems to be a relatively isolated mountain pass crossing the Qaradagh mountain range? In the following pages, we shall argue that in Sasanian times the main route leading from western Shahrazur – and specifically from the area around Yasin Tepe – to the Mesopotamian plains went through the Paikuli pass.[1]

Shahrazur was and still is one of the largest and most intensively cultivated agricultural basins in the Zagros mountains; it was certainly capable of hosting Narseh's presumably sizable army when Šābuhr's youngest son traveled southwards from Armenia to the lowlands of Mesopotamia to claim the Sasanian crown. Before crossing the twin Baranan and Qaradagh ranges, the mature King of Armenia may well have rested his troops in the town known to mediaeval authors as *Nīm-Rāh* or *Nīm-az-Rāh*, i.e. 'half-way' (station) on the road leading from Ctesiphon to the royal Fire Temple of Ādur-Gušnasp, an ancient town that still prospered in the 14th century, when Mustawfī visited it.[2]

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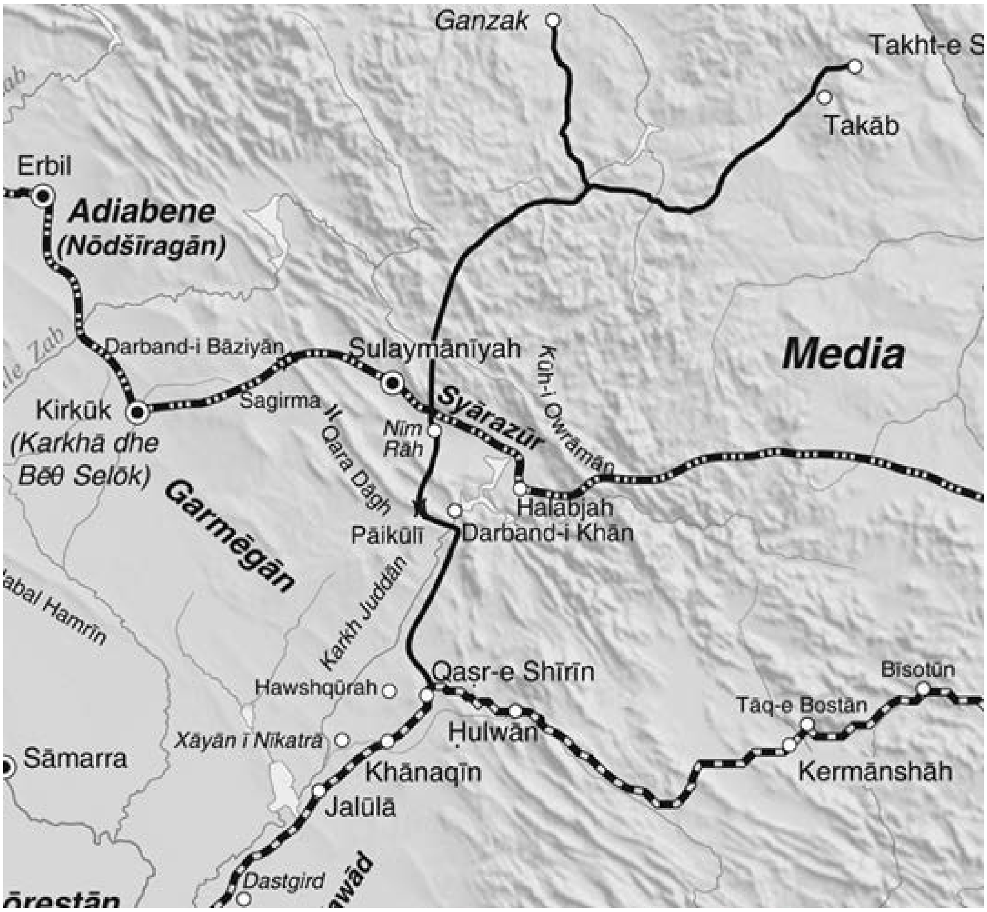
[1] On Narseh's journey from Shahrazur to the Mesopotamian plains see further CERETI forthcoming.


Ganzak
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Darband-i Bāziyān
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Kūh-i Owrāmān
Media
Kirkūk
(Karkhā dhe
Bēθ Selōk)
Sagirma
Qara Dāgh
Nīm
Rāh
Syārazūr
Halabjah
Pāikūlī
Darband-i Khān
Garmēgān
abal Hamrīn
Karkh Juddān
Qaṣr-e Shīrīn
Hawshqūrah
Bīsotūn
Tāq-e Bostān
Xāyān ī Nīkatrā
Ḥulwān
Kermānshāh
Sāmarra
Khānaqīn
Jalūlā
Dastgird
wād
ōrestān

Fig. 2.1. Network of roads around Paikuli, from CERETI *et al.* 2015.

Moreover, Narseh's crossing the border to Asūristān at Paikuli recalls Caesar's crossing the Rubicon on his way to Rome. In fact, entering Asūristān at the head of an army was a symbolic gesture that openly stated his claiming both crown and throne. Here, in a natural setting recalling the great Iranian dynastic sanctuary of Naqsh-e Rustam, on a hillock flanked by a small seasonal creek and close to a perennial spring, Narseh erected his monument built to carry a bilingual inscription in which he introduced himself as the rightful heir to his father, Šābuhr I, never mentioning Wahrām I, whom he considered to be a usurper, or his heirs on the Sasanian throne.

Already in 2015, in a paper written together with Gianfilippo Terribili and Stefano Tilia, and again in the paper recently read at the 5th Payravi conference in

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[2] See further LE STRANGE 1905, 90–191, and SCHWARZ 1926, 698.

Irvine,[3] I highlighted that in the years of Sasanian dominion, the fertile plain of Shahrazur was capable of hosting considerable military forces. Thanks to its strategic geographical position, halfway between the great Mesopotamian plains and Media, it was an important commercial and military hub where crucial military and commercial highways of antiquity met. It is precisely this centrality, as well as the breathtaking natural landscape and the symbolic meaning of the Paikuli pass, which ultimately led Narseh to build the monument in this very place, on a low hillock set on the slopes of the last sizeable mountain range before the Mesopotamian plains, rising above the valley between a small river and a seasonal torrent.

The only clear-cut information that we know about Narseh's journey from Armenia to Mesopotamia is that he crossed the border of Asūristān at Paikuli, as he himself narrates in paragraph 32 of his inscription.[4] Moreover, a systematic study of the historical landscape of the region[5] has proven the existence of an important network of commercial and military roads connecting Mesopotamia with the Zagros highlands and further north with Azerbaijan and Armenia. A number of these roads crossed Shahrazur, one among them being the route traversing the Paikuli pass, chosen by Narseh to move towards the Sasanian heartlands. This is not the place to discuss the precise identification of the place where Shahrazur's main city rose, since it is only archaeology that may reveal information leading to a definitive identification of the whereabouts of the town called *Nim-rāh* or *Nim-az-rāh*. Hopefully, further information will be made available by the ongoing archaeological excavations led by the Missione Archeologica Italiana nel Kurdistan Iracheno at Yasin Tepe.[6]

At this stage of our research, we have no means to know whether Yasin Tepe itself should be identified with the *Nim(-az-)-rāh* of medieval Islamic authors. However, since Narseh went through the Paikuli pass he likely set off from Yasin Tepe or from a nearby location, whichever its name may have been in Sasanian times. Had he been in the eastern part of the plain he would have proceeded along the Diyala following the route proposed by Fuad Safar in his 1974 article.[7] Should our hypothesis prove true, Sasanian layers should be close to the top of Yasin Tepe, below the early Islamic levels where a hoard of Abbasid coins was discovered.[8] Sasanian occupation of Shahrazur has been studied in good detail in a recent article by Davood Abian and Farzad Mafi, who were able to use earlier bibliography to build a convincing case in favor of a relevant Sasanian presence in the area.[9] We do not know whether Yasin Tepe may be identified with the main city of Shahrazur in

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[3] CERETI *et al.* 2015; CERETI forthcoming.

[4] See now CERETI, TERRIBILI 2014, 364, and CERETI forthcoming.

[5] The study of historical geography and landscape history has been one of the focal points of Sapienza's contribution to our PRIN; see further the articles by Salih and Terribili, by Insom and Vassalli, and by Marchetti in this volume.

[6] See further Bruno and Maresca in this volume.

[7] SAFAR 1974.

[8] HIJARA 1975.

[9] ABIAN, MAFI 2023.

Sasanian times or not. Nonetheless, considering the orography of the region it is evident that Narseh must have crossed the western part of the plain, not its eastern one, before traveling across the Qaradagh ranges on his way to the Paikuli pass, since had he been closer to Halabja he would have headed straight ahead, descending the Diyala on its left bank, far away from Paikuli.[10]

We do not know in which period of the year the future emperor traveled through Shahrazur, though he probably did not travel in spring, when the waters of the Tanjaro river surge and parts of the land around Yasin Tepe turn marshy. Likewise, on his way to Paikuli through the Qaradagh range, Narseh must have crossed the Dewana torrent, a minor stream capable of devastating floods. Moreover, we know that once in the Qaradagh valley, the king could have headed east, toward today's Darbandikhan. Instead, he went through Paikuli, probably because coasting the Diyala on its western bank was too risky and the Bani Khelan river ford could not be crossed at the time he reached Paikuli. Rawlinson tells us that traveling down the river on its western bank meant choosing a difficult way, far too impervious to any army to travel on.[11] Still today, some of the old villagers interviewed by Camilla Insom remember that no loaded mule could travel the narrow trail south of Bani Khelan without risking falling into the precipice. In fact, this combined evidence suggests that Narseh traveled in early summer when roads in Shahrazur had already dried, and the Diyala was still full enough of water to prevent crossing it at Bani Khelan.

Paragraph 32 of the Paikuli inscription, re-edited by myself and Gianfilippo Terribili in 2014, narrates that the notables who met Narseh at Paikuli came from four Sasanian provinces found in the area stretching between Upper Mesopotamia and the upper course of the Diyala: Asūristān, Nōdširagān, Garmīgān and Syārazūr (Fig. 2.1).[12] This shows once again that the two Sasanian provinces of Garmīgān and Syārazūr, communicating through the Paikuli pass, were part of the complex road system connecting Ctesiphon to the western-regions of the Empire thus making Narseh's decision to choose this very spot for his *res gestae* clear. The fact that the future Emperor chose to cross the Paikuli pass, and not to follow the road on the eastern bank of the river Diyala, shows that Narseh must have started his journey from the western part of Shahrazur, near the modern town of Arbat, where Yasin Tepe lays, and not from Halabja.

Once established Narseh's probable itinerary from Shahrazur to Paikuli let us try to trace the hypothetical route that he followed when traveling from Paikuli southwards to the Mesopotamian plains. A member of our team, Camilla Insom, investigated and documented the nomadic trails used by members of the Jaf confederation that used to travel through the pass in their seasonal transhumance. Building on this information, the co-author of the present article, Barbara Faticoni, highlighted a possible itinerary joining Yasin Tepe to Paikuli, and then on to Sarqala and Kalar (Fig. 2.2).

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[10] On Yasin Tepe see also SAFAR 1974, MAR'OUF 1999, AHMAD 2018, NISHIYAMA 2020, NISHIYAMA, YAMADA 2023, and Bruno and Maresca in the present volume.

[11] RAWLINSON 1839, 29.

[12] CERETI, TERRIBILI 2014, 364. See further GYSELEN 2019, 49–50, 81, 165–166, 205, with earlier bibliography; see also Salih and Terribili in this same volume.

Our working hypothesis is that Narseh, once cleared the Paikuli pass and having met his supporters, did not turn towards the seasonal ford of Bani Khelan on the Diyala, since it may not have been fordable in that time of the year, while until less than a century ago the area of Qatra on the right bank of the Diyala, south of Bani Khelan could only be crossed through a narrow path only fit for small groups. On the contrary, he chose to travel through the lower hills of Darî Khîla to continue on to Kifri. Admittingly, this itinerary is only hypothetical, but it would fit in well with what we know about Parthian and Sasanian settling in the region. A Parthian period vaulted tomb was discovered in Sarqala in 2013, and the survey led by Luca Colliva (University of Bologna) documented a multi-period settlement centering on Qala Kon.[13] Notably, Sarqala is located about 27 km. to the SW of the city of Kalar, where one finds the northernmost all-year ford crossing the Diyala. On the other side of the river an impressive Sasanian settlement centering on the mound known as Gawr Tepe in the Khani Masi plain,[14] now investigated by the team of the University of Bologna.

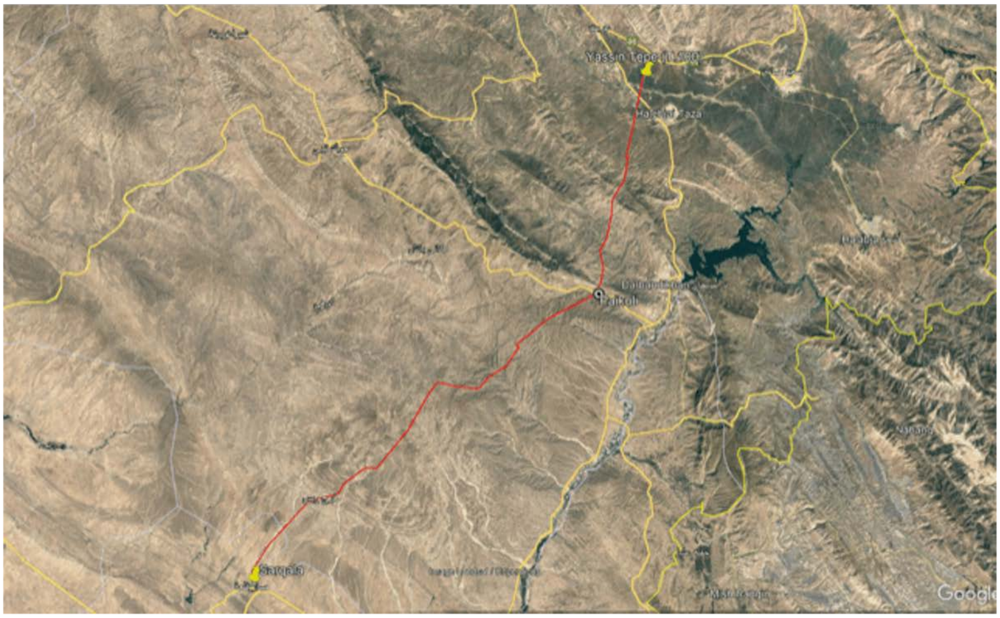

Fig. 2.2. Narseh's itinerary.

Summing up, Narseh probably spent some time in the area of Yasin Tepe, allowing his troops to rest, then moved south, crossed the Barazan, traversed the Dewana valley and climbed up the Qaradagh range to reach the Paikuli pass, passed the "border watch-post of Asūristān", then descended to the area of *Hāyān ī Nīkatrā*, the 'Seat of the Victor', presumably close to the whereabouts of our monument, where his partisans had earlier met waiting for his arrival. Having had the upper hand in the dynastic war, the newly elected Emperor built the monument of *Pērōz-Anāhīd-Narseh* to celebrate his success. There, at the foot of the Paikuli pass, he had met the nobles and grandees who supported his claim to the Sasanian throne. From Paikuli, he moved south crossing the Darî Khîla hills, reached Sarqala, and went on to reach the Sasanian heartland.

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[13] COLLIVA *et al.* 2022.

[14] CASANA, GLATZ 2017, 4, 12–16.

C.G.C.

2.2. The latest excavations and research activities at the Paikuli Tower site

The site of Paikuli is located just over 50 km south of the city of Sulaimaniyah and 7 km west of Darbandikhan, in the southernmost portion of the western Zagros.

Today all that is left of the once majestic Paikuli Tower is a large mass of its core, cement and stone aggregate, which has completely lost its outer layer of blocks. As was probably the case with early travelers who visited the monument in modern times,[15] when we first came to the site we were faced by an incoherent spread of blocks, filling material and natural stones (Fig. 2.3).

At the time of our first campaign in 2006, only a few engraved blocks had been removed and brought to Sulaimaniyah Museum. Some of the remaining blocks were lying as far as a few hundred meters away from the monument itself. The main objective of our first campaign in 2006 was a detailed survey of the hilltop surface, to collect the inscribed bocks still *in situ*, as well as a topographical survey of the area of 'spreading' of the material coming from the tower[16]. Furthermore, the Italian team started a limited excavation of the site, focusing on the study of the stratigraphy around the monument and to study the lower portion of the tower itself. After a long break due to political instability in the area, the mission resumed its activities on a permanent basis in 2018 with two campaigns, one in the spring, the other in the autumn months.[17] In these campaigns the team engaged in a new and more attentive survey of the monument and its surroundings. The two campaigns have been particularly fruitful, leading to the discovery of new and unedited blocks and fragments of inscription.

However, it was only in 2019 that stratigraphic research activities finally resumed concurrently with the continuation of the surface activity focusing on the research for unpublished blocks and on cleaning the space around the monument.

The area left to explore after the activities of 2018 (mainly the one to the south and east of the monument) was divided into quadrants which were all systematically investigated in 2019, so as to find other unrecorded blocks belonging to the tower. Furthermore, the deep gully north of the hill, where a small stream flows towards the Barkal village, was the subject of a new survey. In the winter and spring months of 2019 the small torrent, dry during the hot season, was affected by an unusual flow that changed the riverbed, bringing to the surface new blocks previously entirely buried. Finally, the foot of the hill to the north, where today a modern road runs, has been completely investigated in search of further fragments from the tower. Also in this case, like in 2018, the new discovered blocks were completely documented: inventory numbers, photographic documentation, measuring and drawing, all necessary to enter it into our database. Different kinds of blocks were identified, among them: merlons (PB 545, 603, 605, 655, 659), a half-column (PB 661), lunettes (PB 600, 607, 622, 623, 625, 635), inscribed fragments (PB 539, 546, 631), and inscribed blocks (PB 536, 601, 653). Some of them were moved to Sulaimaniyah Museum for security reasons.

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[15] See HUMBACH 1974. For a summary of the history of studies on Paikuli see HUMBACH, SKJÆRVØ 1978–1983, vol. 1, 13–16, and vol. 3.2, 7–9; KOZAD 2011; CERETI, TERRIBILI 2012.

[16] See FATICONI 2006.

[17] See CERETI *et al.* 2019.

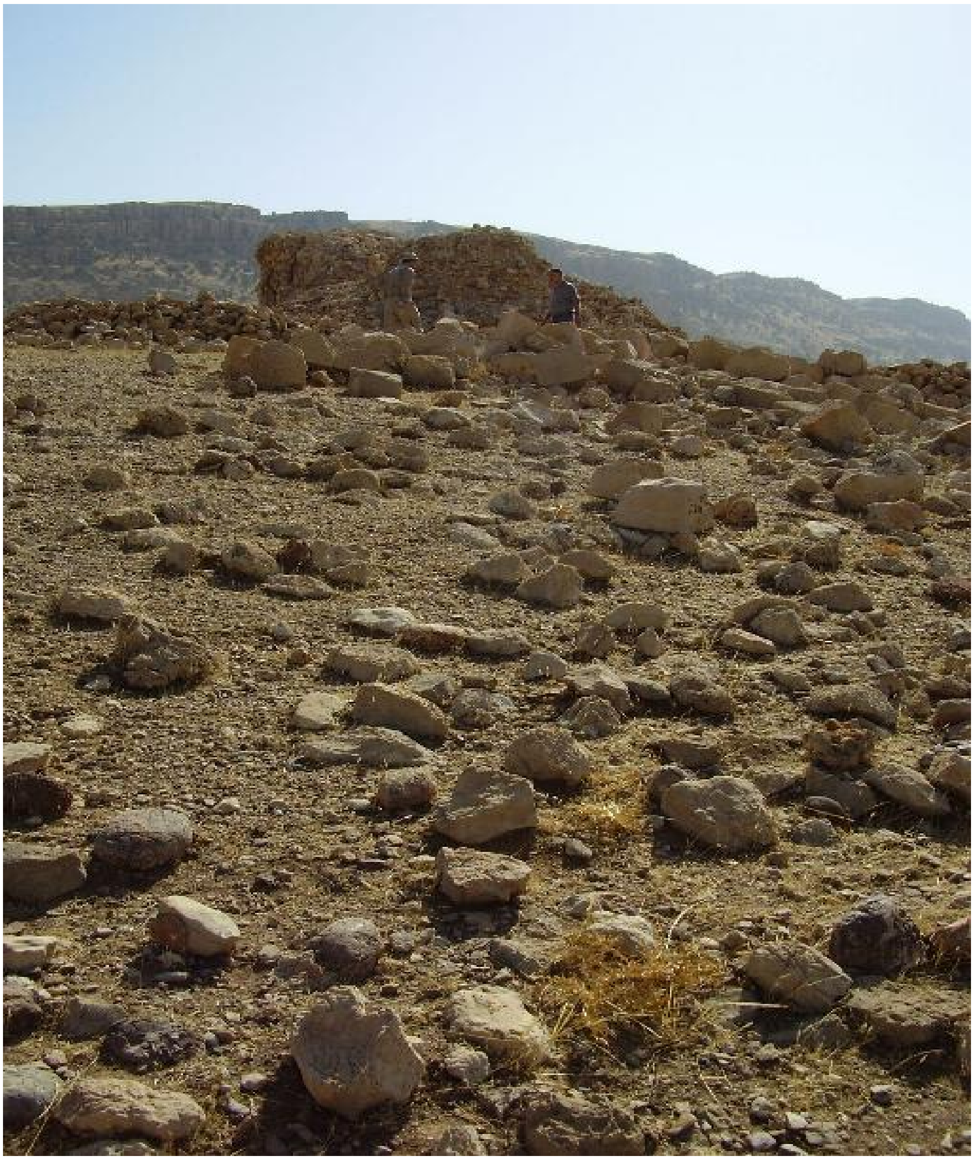

Fig. 2.3. The Paikuli monument on top of its low hill in 2006.

The new excavation activities affected the opening of a new trench (TT3) 10 m × 3 m, located in the South-East corner of the monument, direction NW–SE. The area is the same touched by the 2006 excavations, in the quadrant South-East of the tower. The surface of the trench was covered by a sequence of 11 blocks from the monument (PB 636–646) which were photographed and documented before they were moved. After the removal of the blocks and a thorough cleaning of the area, we started digging the surface layer SU 45. A dark brown soil with gravel, between ca. 20 and 50 cm in thickness, extremely contaminated (several cartridge cases and metal material from weapons were found).

Underneath, the excavation brought to light two different stratigraphic units: SSUU 46-47. Of particular interest, SU 46, at the North-Western corner of trench, seems to be a cut made on the natural soil of the hill. The excavation stopped a few tens of cm below the surrounding ground level as it has been in the case of the trenches TT1 and TT2. Also, in this case the stratigraphy was only few centimeters deep before it reached the natural soil. Nonetheless, the discovery of SU 46 gave us precious information regarding the construction of the tower: the investigation of the South-Eastern corner undertaken in 2006 showed the total absence of foundations at the base of the tower that possibly rose directly in elevation without substructures. The presence of a 'cut' in the North-Western corner of Trench TT3 seems to confirm the hypothesis that the hill was levelled in order to build the monument directly on the natural soil.

During the following excavation season, in 2021, we decided to go on trench TT1 in its continuation in a westerly direction towards the tower. Once the big fragment (US 50) of the tower side that was obstructing the passage was removed, we continued the trench towards the monument. Unfortunately, such a significant fragment, collapsed from the tower, completely destroyed the stratigraphy of the underlying ground, and the various walking surfaces identified in 2006. Only fragments of the compact earthen floor identified in 2006 (US 37) were found while a large 'cut' close to the entire E wall of the tower utterly disturbed the stratigraphic connections between the rammed earth itself and the structure. All this was probably caused by massive military operations which broke through the eastern wall to allow passage inside the tower to be used as a shelter and shooting range (as evidenced by countless war finds: cartridges etc.). The big cut in the E wall was not completely emptied to avoid possible collapses in an already very fragile structure (Fig. 2.4).

The same considerations and decisions have been made after the cleaning of the South wall. It also revealed a 'passage' that occupies the entire side and that was not touched to avoid the collapse of the structure itself. The fragility of the Paikuli monument required a certain caution of 'intrusion' in the absence of adequate consolidation interventions. In fact, if we empty all the debris of the tower without preventive consolidation, what remains is only an 'empty shell' ready to collapse with the next earthquake.

The same year, a very small trench (2x2m) was dug close to the N/W corner of the tower, where it was possible to record the only block, or perhaps two, of the external facing of the tower still *in situ*. Here too, the excavation stopped after a few centimeters on virgin soil, showing how the blocks were placed on a conglomerate of a few centimeters directly on the hill. But the most interesting thing is actually the corner itself which shows a sort of 'leak' of conglomerate slipped between the blocks *in situ*, as if the conglomerate had literally flowed away when it was still semi-liquid and then dried out of its pre-established location. Once the trench excavation work was finished, we moved on to clean the West side occupied by a large collapse in which, already the previous year, we had identified a sort of 'alignment' that could indicate an underlying structure.

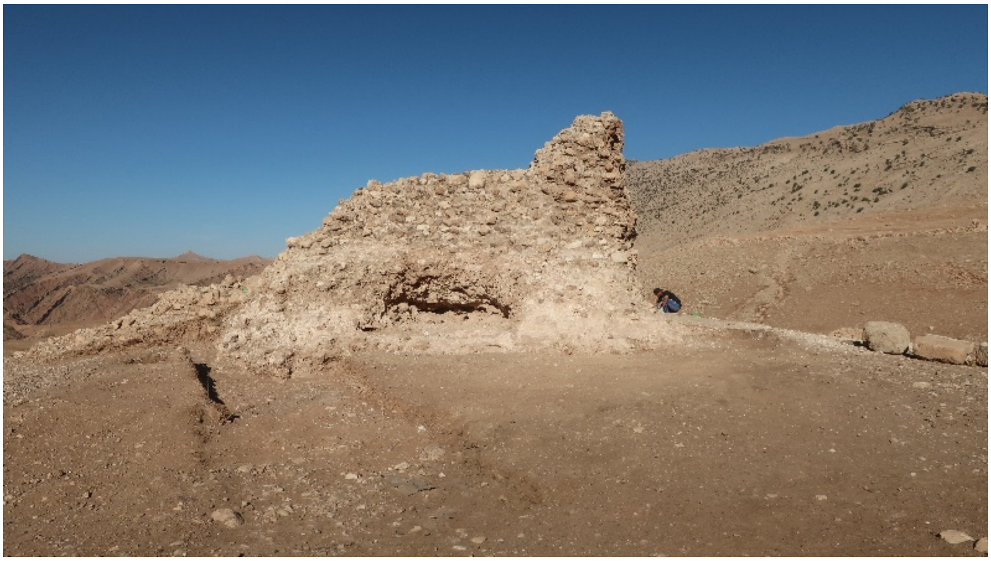

Fig. 2.4. Paikuli Tower: East wall.

As soon as the surface layer was removed, we found a significant collapsed situation of the blocks coming from the external curtain of the West wall, 'rolled', so to speak, from the monument. Once this enormous layer of collapse had been removed, an underlying stratum of a completely different nature from the previous one appeared to us. We are still in the presence of a deposit of destruction of the western wall of the tower, but in this case, we cannot properly speak of a 'collapse'. Once again, the general impression is that the internal conglomerate, for some reason not yet completely dried on this side of the tower, has, so to speak, 'slipped' downwards, dragging the blocks of the external facing with it. The layer consisted of materials of the same nature as the conglomerate of the tower, within which the large blocks of the wall had been incorporated: a compact and hard deposit, just like the internal conglomerate of the monument, which once removed revealed two interesting rows of blocks still in their original position (Fig. 2.5).

A row of blocks at the base, *in situ* but turned 45 degrees and resting on their face, and a completely off-axis upper row that appears to follow a sort of undulatory movement (draping) for the southern half, while appearing almost 'leaked' in the N-W corner. These types of 'structural movements' recall deformations created by telluric shocks on architectural structures that were victims of catastrophic seismic events[18]. Finally, in 2023, a small number of inscribed and mounded blocks was accidentally recovered at the northern foot of the hill. The current studies on the tower, still in progress, are attempting to clarify some aspects linked to these latest discoveries. Is it possible to imagine an abrupt end for the Paikuli Tower anterior to its abandonment and a subsequent catastrophic seismic event? And if so, at what point? Immediately after its construction, or even before it was completed? A series of questions that, if clarified, could bring a new perspective on the history of the monument and Narseh's campaign and reign itself.

B.F.

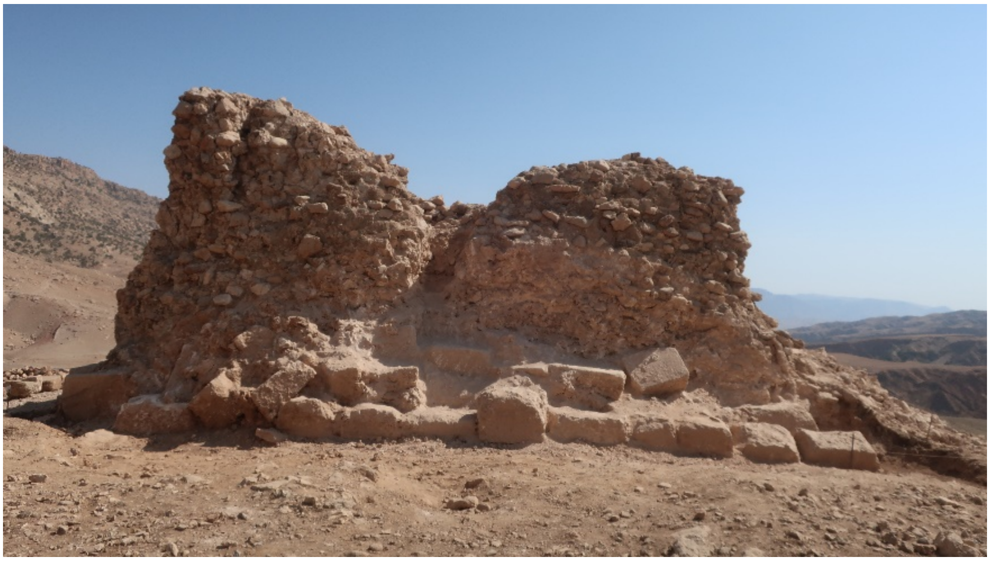

Fig. 2.5. Paikuli Tower: West wall.

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[18] See BERBERIAN *et al.* 2014, fig. 11.

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3. On Roads and Ruins: Across the Zagros and the Shahrazur in the Accounts of Western Travellers in the Early 19th Century

Camilla Insom, Massimiliano Vassalli

Abstract

This article investigates early nineteenth-century British travel across the frontier zone stretching from Baghdad to the western Iranian plateau, with a particular focus on the regions of Shahrazur and the Zagros Mountains. Situated at the intersection of the Ottoman and Qajar empires, and historically resonant as a corridor of exchange since the Sasanian period, this area became the subject of renewed interest as European powers intensified their geopolitical presence in the Middle East. The study reconstructs the routes followed by British travellers as they moved through the contested landscapes of the Baban Emirate, Sulaymaniyah, and the mountainous passes leading into Iran. Special attention is given to their observations of ancient monuments and cultural heritage sites—ruins, inscriptions, and urban remnants—which were meticulously recorded for both antiquarian and strategic purposes. Drawing on travel accounts, cartographic records, and archaeological remarks, the article explores how these journeys contributed to the gradual unveiling of a region long marginal to European geographical knowledge.

Keywords

British travel writing, Sulaymaniyah, Zagros Mountains, Ancient monuments, Cultural Heritage, 19th-century European exploration.

3.1. Introduction

Beginning in the mid-18th century, with the advent of European expansion in Asia, an increasing number of Europeans travelled to Asian courts seeking advantageous deals for their nations.[1] Initially focused on the Indian subcontinent, this expansionist agenda soon extended to the Middle East due to the rivalry between France, Great Britain and Russia. The rise of Napoleon prompted France to seek new allies in the Middle East to counter British dominance in India and reclaim its lost colonies.[2] Britain responded by strengthening its presence in Baghdad and the

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[1] VASSALLI 2023, 192–193; YAPP 1980, 24.

[2] POTTINGER 1816, 3; AMINI 1999, 113–114.

Persian Gulf and by sending a series of diplomatic missions to the Qajar court in the late 18th and early 19th centuries, promising to assist Iran against its northern rival, Russia, which, in turn, aimed to assert dominance over the Caucasus and Central Asian regions.[3] The end of the Napoleonic threat initially led London to scale back its interests in Iran,[4] but the onset of the Great Game compelled Britain to resume its diplomatic missions in the Middle East, viewing Russian expansion as a direct threat to its possessions in India. Around the same time, the area at the crossroads of the Mesopotamian plain and the Iranian plateau, largely corresponding to the ancient Shahrazur and still almost entirely unexplored by Europeans, began to attract attention from the Western world. Most of the territory was part of the Baban Emirate,[5] which had ruled the region since the 16th century. At the end of the 18th century, Ibrahim Pasha decided to relocate the emirate's seat from the Zagros Mountains to the Shahrazur Plain, where he founded Sulaymaniyah, officially declared the capital in 1199/1784.[6] The new foundation restored centrality to a region that, during the Sasanian period, had served as a strategic junction for goods and cultures along the Royal Road.[7] It was against this backdrop that, as C. J. Edmonds would observe nearly a century later, the middle years of the nineteenth century emerged as "the Golden Age of exploration in the Middle East, and most of the giants of those days were Englishmen".[8]

In this context, Baghdad assumed a primary role, serving as either the starting or ending point for most 19th-century British travellers, with the Residents in Baghdad (C.J. Rich) playing a crucial role in welcoming and guiding their compatriots.[9] Indeed, the military personnel benefited from the steady presence of those who had already been in the territory for some time. Their task was to record any sort of toponym, hydronym, or other detail that might be useful for military purposes, including ruins of ancient towns or fortifications (Lt. Heude; Capt. F. Jones; R. Mignan). The constant presence of envoys and Residents in the Middle East also attracted other types of travellers. Seizing the opportunity presented by political and economic developments, journalists and artists (J.S. Buckingham; J.B. Fraser) travelled to the Middle East to delve into and document local cultures. Meanwhile, orientalists and intellectuals (Sir R.K. Porter; Sir H.C. Rawlinson) followed the ancient routes of eastern caravans and nomadic tribes to unearth evidence of ancient Middle Eastern civilisations or follow in the footsteps of the great figures of history, such as Heraclius or Alexander the Great.

This contribution aims to trace the routes travelled by these British explorers in the first half of the 19th century, paying close attention to their reports on the cultural heritage along the paths that lead from Baghdad towards the Shahrazur and the

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[3] YAPP 1980, 34, 40–41, 139, 385–389; KAZEMZADEH 1991, 314–341.

[4] YAPP 1980, 24.

[5] On the Baban Emirate see JAMES 2021.

[6] RICH 1836a, 387.

[7] See Cereti & Faticoni, Marchetti, and Salih & Terribili in this volume.

[8] EDMONDS 1957b, 21.

[9] ANONYMOUS 1836.

Iranian territory through the Zagros Mountains. At the time, the ongoing disputes between the Ottoman Empire and Qajar Iran[10] combined with the decline of the Kurdish Emirates,[11] resulted in blurred and shifting borders, making it impossible to establish a clear and lasting division of territory. Consequently, for practical reasons, but also due to their respective areas of expertise—Dr Insom for the Kurdish-Iraqi region and Dr Vassalli for the Iranian area—the authors have preferred to divide the work according to the natural boundaries of the Zagros mountain range and the Diyala River.[12] Specifically, Dr Insom will analyse the routes to the right of the Diyala, which proceed from Baghdad towards Sulaymaniyah. Dr Vassalli, on the other hand, will focus on the routes that cross the Zagros from Sulaymaniyah to reach the Iranian hinterland, as well as the path that follows the left of the Diyala, leading more directly into Iran.

C.I., M.V.

3.2. From Baghdad to the Shahrazur across the Qaradagh

The landscape north of Baghdad rises gradually from the lowlands of Lower Mesopotamia across the Jabal Hamrin, a low ridge that stretches from the right bank of the Diyala River to the northwest toward Kirkuk, and into the foothills of the Zagros Mountains proper, dominated by two parallel mountain ranges that form a natural boundary historically regulating access to the Shahrazur plain.[13] The southernmost range, the Qaradagh, is cut by the gorges of the Basara and Diyala rivers and can be crossed via three passes—Bazian, Sagirma, and Paikuli. Further north, the Baranan range offers its own passes—Tasluja, Galazarda, and Sole—that finally open onto the expansive plain at the heart of the Baban emirate. Protected by its natural barriers—what Porter would later describe as "the indeed primeval wilds of nature"—[14] the Shahrazur region remained for a long time largely overlooked by European travellers. Only with the foundation of Sulaymaniyah and the House of Baban's efforts to establish it as a regional centre of commerce and administration did Western travellers begin to turn their attention to the region.

Those approaching from the south typically followed one of the main axes of communication of the Ottoman Empire: the Anatolian Central Route, which connected Constantinople to Baghdad and extended further to Basra.[15] Although largely unchanged since the sixteenth century, the route had become increasingly dangerous, making safe travel impossible without joining a caravan or hiring a government courier to provide both protection and fresh horses at each stage.[16] From Baghdad, the road passed through the main postal stations of Kifri, Tuz Khurmatu, Daquq, and Kirkuk. From there, travellers would leave the main artery and turn eastward to cross the Bazian and Tasluja passes before reaching the Shahrazur plain. Two alternative routes branched off from the Anatolian Central Route at Kifri. The first passed through a single postal station at Ibrahim Khanci before crossing the Sagirma and Galazarda passes. The easternmost route led from Kifri to the Paikuli and Sole passes; primarily used by nomadic tribes, this path lacked any postal stations entirely.

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[10] SCHOFIELD 2008.

[11] EPPEL 2008.

[12] For toponyms, when available, the authors follow the conventional English spelling so to minimise the confusion to the different Kurdish, Persian, and Arabic spelling. Toponyms mentioned by travellers are kept as in the original texts.

[13] For the historical geography of the region see LEVINE 1973; ALTAWEEL *et al.* 2012.

[14] PORTER 1821, 425.

[15] ÇETIN 2015, 430.

3.2.1. The Bazian Pass route

From Baghdad, the Anatolian Central Route passed through the village of Delli Abbas, ascended the Hamrin Hills, and crossed the Narin River before reaching Kara Tepe, the last settlement before entering the territory of the Baban Emirate. In its immediate vicinity stood the first site to attract Claudius Rich's attention during the early stages of his journey to Sulaymaniyah in the spring of 1820: Namazkelan Tepe, a high mound that yielded numerous urns containing human bones, leading him to speculate that it might have been a *dakhma*, a Zoroastrian funerary structure.

Continuing toward Kifri, now within the Kurdish-controlled area, the route passed near the extensive site of Eski Kifri, stretching a few miles southwest of the city and first documented by Porter:[17]

> "At a little distance from the road to the westward, rose an enormous mass of mounded earth, of a semicircular form, in length about 400 yards, and in height 80 feet: broken tiles, pottery, &c., covered its sides. Other minor elevations of the same import, appeared in its neighborhood, starting up amidst these fertile tracks, and connecting themselves with another mound of more than double the dimensions of the first. These are named by the natives Tulli Shahan, and Ashtoukan, who add, "they were the palace and Kala (citadel) of a great town, built ages' back by the Guebres"."[18]

Drawing comparisons with the ruins of Kangavar, which he had visited on a previous journey, Porter speculates that they might be "the ruins of Elymais. Though, perhaps, a little out of place here, so far from their site".[19] Rich also attributes Eski Kifri to the Ghiaurs (another term for Guebre) but confidently dates it to the Sasanian period. There is little doubt that both authors refer to the same site, as Rich identifies Ashtoukan as the largest mound near the one he explored:[20] an immense artificial mound, approximately 960 x 960 feet in area and 57 feet in height, with steep, nearly vertical sides interrupted by ravines:

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[16] CEYLAN 2011, 44–45. Buckingham gives a detailed description of "the practice of travelling with government Tartars" BUCKINGHAM 1827a, 344-345.

[17] PORTER 1821, 431–432.

[18] About the term 'Guebres,' see SHAKI 2000; VASSALLI 2023, 191, n. 1.

[19] PORTER 1821, 432.

[20] RICH 1836a, 21.

> "We dug about it, and found immense quantities of small pieces of human bones, and fragments of urns, all of which had a black varnish on the inside; but the pottery was of different quality, some coarse and unornamented; others of a finer kind; finest, with figures of deer or cows in small circular compartments. […] The soil, as deep as we could discover by means of this ravine, was impregnated with black unctuous mould, fragments of urns, and small bits of bones. On the centre of the mound is a small burial-place of Arabs; and the Mussulman now confounds his dust with that of the fire-worshipping Persian; for that this was a Sassanian place of exposing the dead I have no doubt, from its appearance and character, and the style of the fragments found."[21]

In the same area, Rich also describes the remains of a small wall, possibly part of a city enclosure, now reduced to a few feet in height and stretching approximately 300 yards, which he states is "unquestionably of the age of the remains of Kasri Shireen and Haoush Kerek".[22] Robert Mignan, who also visited the site travelling in the region during his tenure with the East India Company in the 1820s and early 1830s—and whose contributions have remained largely overshadowed by those of more prominent contemporaries—[23] likewise dated the remains with confidence to the Sasanian period:

> "I made some excavations into the side of a hill, and found bricks assimilating in quality and dimensions with those forming the walls of Ctesiphon. Among the debris I found an old iron seal-ring, and several thin silver Shapoorian coins, similar to those I had before met with at the sculptured ruins of Shapoor, near Kauzeroun, and in many other parts of Persia."[24]

Just half a mile southeast of Kifri, Rich describes another site he refers to as Kara Oghlan, where he again initiated an excavation on what he describes as low walls or foundations:

> "By dint of digging we laid open a small room, or rather all that remains standing of it, viz., about four feet high of wall with a door-way; the room is very small, say about twelve feet square; the walls are built of unshapen stones (as at Kasri Shireen), of gypsum covered with plaster, on which are wrought ornaments in compartments. We dug out pieces of plaster with ornaments of flowers or arabesques painted on them in fresco, the outline being black and filled up with bright red, and the ground being the colour of the plaster; the colours were beautifully fresh."[25]

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[21] RICH 1836a, 21.

[22] RICH 1836a, 21.

[23] On Robert Mignan see MERCER 2019.

[24] MIGNAN 1839, 27–28.

[25] RICH 1836a, 15–16.

East of these, Rich recorded a large, square-shaped mound bearing traces of buildings on its summit, other ruins stretching toward the hills with square foundations similar to those at Qasr-e Shirin and Hawsh Kuri, fragments of massive structures possibly identified as remnants of city walls, and rock-cut sepulchral chambers, locally known as "Ghiaour houses", which he compared to Achaemenid tombs at Naqsh-e Rustam. Further afield, at a site called Kiz Kalasi ('the Girl's Castle'), other urns and bones were reportedly discovered.[26]

The town of Kifri, in contrast to the archaeologically rich landscape surrounding it, contained little of note beyond its postal station. Only Rich observed the presence of a small Jewish community and a synagogue.[27] From there, the road turned westward toward the opulent little town of Tuz Khurmatu, skirting "a remarkably conical height called the Hill of the Twelve Imams, from a tomb that surmounts it, covering the remains of that number of holy personages". Further north, a short detour led to the ruins—once again identified by Rich as possibly Sasanian—[28] known as Kizzilabad (also known as Kharaba or Kizzel Kharaba):

> "The place, of which they form a remnant, appears to have been of considerable consequence, though the only marked objects now left are the foundations of the various towers and curtain-walls that formed its fortress. Near one of them, a fine double-arched gate, of Saracenic character, might imply a date to the rest. The whole of the visible ruins are of stone and brick; and for nearly two miles from the standing remains, we found mounds and fragments of masonry marking the site of the city. The peasant who guided us to the spot, mentioned that vaulted rooms of different dimensions, are frequently discovered under ground […]."[29]

Beyond this point, leaving the Hamrin Hills to the west, the Anatolian Central Route continued northwest crossing the famous naphtha pits, and then through a stony desert bordered by yellow sulphur hills to the Daquq River (also mentioned as Toak). This stretch of the journey offered little to travellers interested in local antiquities apart from the ruined walls of an old castle—again possibly Sasanian—and six piers, the remains of an oblong structure which, according to Rich, resembled the ruins of Chaldean and Syrian churches.[30] The high towers of the Zeen al-Abedeen *ziyarat* —much frequented by those suffering from eye complaints—[31] indicated the approach to the ford of the Daquq river, beyond which the route reached the village of the same name. Although at the time in ruins, domed structures, minarets and mosques bore witness to Daquq's former importance.[32] On the outskirts of the village, Buckingham described:

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[26] RICH 1836a, 16–18.

[27] RICH 1836a, 15.

[28] RICH 1836a, 25.

[29] PORTER 1821, 434–435.

[30] RICH 1836a, 30–31.

[31] RICH 1836a, 38–39.

> "a Mohammedan tomb of a very singular construction. Its base was a square, on which was raised a dome, not of the usual shape, but pointed like a sugar-loaf, and formed of a chequered open work of bricks, resembling the pyramidal form, in which cakes of soap are sometimes piled up in perfumers' shops, with their ends only resting on each other, and the interstices hollow."[33]

This is likely the same structure Rich refers to as "a little Imaum with a pine-apple spire, like that over the tomb of Zobeide at Baghdad, but by no means as elegant in its design and execution".[34]

Daquq was the last unavoidable stop along the Anatolian Central Route from Baghdad. Beyond that point, travellers could choose to leave the main road and cross the plain towards the village of Leilan and Chamchamal (or Tchemtchemal) —a 100-foot-high artificial mound where Rich set his camp, collecting ceramics and eventually concluding that the site must be at least Sasanian—[35] or to remain on the established route, continuing through Taza Kurmatu—where another immense *Kala* was surrounded by religious edifices and other ruins—[36] and on to Kirkuk, visible from a great distance, rising against the utterly barren landscape "like a giant in the desert".[37]. From Kirkuk, the route entered increasingly rugged terrain, rising through a succession of rocky elevations and narrow valleys. A series of barren ridges and steep ascents grew progressively more severe as the road approached the eastern edge of the plain, culminating in what European travellers referred to as the Gate of Kurdistan: the Derbend-i Bazian, the westernmost pass across the Qaradagh mountain range. Just approaching it Rich notices a first structures:

> "A small khan stands on the right hand, and just at the mouth of the pass is a square ruin or platform, with the remains of little vaulted cells in it, and some wells of water. This resembles the platform at Kasr i Shireen, and Haoush Kerek and is undoubtedly, like them Sassanian. For curiosity's sake I asked the guard at Derbent[38] by whom he thought it was constructed, and he answered without hesitation, "By Khosrou"."[39]

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[32] PORTER 1821, 437.

[33] BUCKINGHAM 1827a, 344.

[34] RICH 1836a, 40. Here, Rich might be referring to what is today the Zumurrud Khatun Mosque and Mausoleum.

[35] RICH 1836a, 54.

[36] PORTER 1821, 437–438.

[37] PORTER 1821, 437–438. A detailed account of Kirkuk falls outside the scope of this article. It is worth noting, however, that both Porter and Buckingham record local identifications of the city with the Demetrias of Strabo and the Corcuro of Ptolemy (Porter 1821, 439; BUCKINGHAM 1827a, 338).

[38] In Sorani Kurdish, the term *derbend* generally denotes a gap or pass within a mountain range. In this instance, however, Rich appears to conflate the geographical designation with a proper toponym.

[39] RICH 1836a, 58.

The pass itself appeared as a narrow defile, approximately fifty yards wide, flanked by the remains of defensive walls extending down both slopes. Porter explicitly links the site to the passage of Heraclius at the close of his third Persian campaign:

> "There cannot be a doubt of this being the formidable pass through which Heraclius marched after the fall of Dustajird,[40] in his route to Tabreez, at the close of his third expedition. Indeed, it is the only road he could have taken to arrive at Siozuros, (now called Shar-i-zool,) the ancient capital of western Courdistan; and since the Roman swords glittered on these rocky summits, many a flesh from both Turkish and Persian sabres have gleamed here, disputing the passage on similar errands."[41]

Beyond the pass, travellers could encamp near the village of Dargazeni, where Rich observed from a distance an artificial mound to the north-east, named Gopara, which he thought resembled that of Chamchamal, and two ruins in the hills to the left of the valley—Geura Kalaa and Sheitan Bazar—which he considered "unquestionably Sassanian remains". [42] From the latter possibly derives the toponym Devil's Valley,[43] reported by Rich. From there, the path grew gentler as it wound through the heart of the mountains and, after a few hours' journey across the final accessible pass to the village of Tasluja, opened onto the western edge of the Shahrazur plain.

> "This genial part of Courdistan, like the fabled god of the vine rocked in his stone cradle, lies in the very lap of rocks and mountains."[44]

3.2.2. The eastern routes: across the Sagirma and Paikuli passes

At the dawn of the eighteenth century, a second way from Baghdad to Sulaymaniyah did exist—indeed a shorter one—but it was considered difficult, uncomfortable, with only a single postal station along its entire length, and exceedingly dangerous.[45] Owing to its poor reputation and impractical conditions, the route was generally avoided in favour of the better-known and more manageable road through the Bazian Pass, which both Rich and Porter eventually followed. This situation began to change in the 1830s, when the route made its first appearance on Western[46] maps and was increasingly used—particularly in the opposite direction, from Sulaymaniyah to Baghdad—on the recommendation of the Baban rulers.[47]

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[40] On the proposed identification of the Sasanian palace of Dastgerd by Western travellers, see below §3.1.

[41] PORTER 1821, 446.

[42] RICH 1836a, 59–60

[43] RICH 1836a, 61.

[44] PORTER 1821, 433.

[45] PORTER 1821, 433; RICH 1836a, 55.

[46] The earliest Western map to include the Sagirma Road that we have been able to trace is found in *The London Atlas of Universal Geography*, published in 1838 (ARROWSMITH 1834, Central Asia, map 29).

The first to attempt the route, a few years before it became more widely used, was William Heude, who travelled it in 1817 with the specific aim, as he put it, to pursue a "journey through that unknown tract, to the N. E. of Kifri, which is generally left a blank in all the maps, for want of authentic materials to fill it up".[48]

From Kifri, the path—entirely indistinguishable to Western eyes—led northeast across rocky desert hills without a single village or trace of cultivation. The only features reported by Heude, and later by all who followed in his steps, were the numerous and extensive groups of tombs scattered along the slopes. Robert Mignan, travelling in 1829, describes them as follows:

> "These tombs stood alone; there were neither villages in the neighbourhood, nor any traces even of encampments. Many were heaped closely together, as if some great engagement had taken place, and the slain had been hastily interred. The central tombs, however, had granite pillars of some elevation, intending, perhaps, to mark the graves of chieftains of rank."[49]

These were, in all likelihood, cemeteries of the Jaf, a nomadic tribe whose winter camps lay in this area.[50] After roughly thirty miles, the route reached Ibrahim Khanchee, the only postal station along the way, of which nothing is reported except that it offered "a tolerable house for the accommodation of travellers".[51] From there, after some eight hours of travel across the deserted landscape, again dotted by cemeteries, one arrived at Kitchan, "a small miserable village on the declivity of a hill where the houses are scooped out of the slope, and only covered with reeds and mud", which provided no shelter—not even a hut—for passing travellers.[52]

From this point began the true ascent into the Qaradagh range—steep, rugged, and increasingly hostile. Heude, in describing the dramatic topography, wrote that it "appears as if some giant's hand had rent the hill in twain to stride into the plain".[53] Mignan, who travelled the route in reverse—from Sulaymaniyah to Baghdad—recalls a passage by Diodorus Siculus describing this stretch of the road as "the ladders", a name referring to the successive mountain passes leading from

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[47] This was the case, for example, of James Baillie Fraser, a Scottish traveller and writer who travelled from Sulaymaniyah to Baghdad in 1834, accompanied by a guide assigned to him by Sulaiman Pasha (FRASER 1838); or of Felix Jones, commander of the Royal Indian Navy, who took the same route in 1844 and was give letters of safe conduct from Ahmed Pasha.

[48] HEUDE 1819, 193.

[49] MIGNAN 1839, 19–20.

[50] EDMONDS 1957b, 147.

[51] HEUDE 1819, 194.

[52] HEUDE 1819, 195.

[53] HEUDE 1819, 199.

Mesopotamia into the Zagros.[54] It is worth noting that a 1944 British military report still refers to the Sagirma pass as the "pass of the ladders", possibly suggesting the persistence of the toponym in local usage.[55]

As the path approached its highest point, travellers encountered the remains of a long, dilapidated embattled wall, constructed of massive stone blocks and intermittently flanked by round towers.[56] At the summit of the pass stood a second structure: Heude, as usual, is brief in his account, noting only the presence of a wall, the three bastions, and a barrier, which he crossed "through a gateway that was almost crumbling into dust".[57] Mignan, noting in passing that the very pass where he is standing corresponds precisely to Xenophon's account of his crossing through the Carduchian mountains,[58] offered a more elaborate description—although he mistakenly believed he was crossing the Darband-i Bazian:

> "[…] we reached some ruined circular watch-towers and a parapet, which our guide said was called the "Gate of Koordistaun". The opening of this barrier was about twenty yards wide, whence some mouldering walls of masonry led down the hill; a strong hold in olden times, perhaps, against Roman inroads. At this point, a small band of armed men might arrest the advance of any force however numerous; it is difficult even for a single horseman; and the spot is most conveniently situated for overlooking all the entrances into Koordistaun from the Assyrian side. I think it is not at all unlikely that this position often became the scene of military operations. The early historians have been so loose and inaccurate in their accounts, that it is scarcely possible to trace the movements of the numerous armies that passed through Assyria into the country of the Carducii. There can be no doubt, however, that this was the formidable pass through which Heraclius marched, on his route to Ganzaca after the fall of Dustajird, because it is the only road by which he could possibly have reached Siozuros."[59]

It is impossible to determine to what extent Mignan's mistaken belief that he was at the "Gate of Koordistaun" may have shaped his certainty that this was the route taken by Heraclius—though it is likely that he had read Porter's earlier account, in which the identification is made with confidence and in the correct location.

The descent from the Sagirma Pass was equally arduous. The path was narrow and winding, often skirting deep ravines carved by mountain torrents, where the loads on the pack animals would hang precariously over the chasms. At points, the track clung to overhanging cliffs, with vertical drops reaching up to fifteen hundred feet. Once at the base of the Qaradagh, the route entered the valley of the Dewana, a perennial stream spanned by a narrow bridge, and the terrain became gradually more forgiving. The road passed through the villages of Dolan and Timar before ascending the comparatively effortless Galazarda Pass—so unobtrusive that no traveller deemed it worthy of mention—finally opening onto the fertile and luxuriant plain of Sharazur, less than ten miles south of Sulaymaniyah.

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[54] "This country (on approaching it from Mesopotamia) as far as the ladders, as they are called, that is, the passes of Mount Zagros, is flat and low, exceedingly hot, and barren of provision; but the rest is higher, of a wholesome air, and very fruitful": Diodorus Siculus, B. xix. c. 2 (MIGNAN 1839, 12).

[55] MASON 1944, 98.

[56] MIGNAN 1839, 11.

[57] HEUDE 1819, 198.

[58] MIGNAN 1839, 7.

[59] MIGNAN 1839, 9–10. In other passages, Mignan explicitly claims to be at the "Durbund-el-Bazian", for instance when he writes: "There is no part of the landscape which the eye wanders over with more interest than the crags of Durbund-el-Bazian, which stand up on every side in the most rugged and fantastic forms—sometimes strangely piled one on the other, and sometimes as strangely yawning in clefts of a frightful depth". (MIGNAN 1839, 10).

The last southern access route into the Shahrazur plain across the Qaradagh departed from Kifri and entered the barren hills, continuing as far as the ford of the Awa Spi stream, before crossing the Paikuli Pass, traversing the Dewana valley, and finally ascending the Baranan mountains via the Sole Pass. Of this route —if one can indeed speak of a single route, given that it consisted of a multitude of loosely defined tracks that converged only at the passes—virtually nothing is known, and the absence of any postal stations along its course clearly indicates that it was not in use by merchants or official travellers at the time. Instead, it mainly served as a seasonal migration corridor for Kurdish tribes—primarily the Jaf, who at the time were still almost entirely nomadic—moving from their winter camps in the Kifri area to the summer pastures on the Zagros, around Penjwen or across the Persian frontier, between Bane and Mariwan.[60]

We know of only one European who attempted this route: Henry C. Rawlinson, the renowned orientalist. In 1836, while exploring the region of Zohab, on the left bank of the Diyala at the foothills of the Zagros, he reported:

> "I heard of sculptures and statues which would well merit the attention of any future travellers in this country. The place is called Páï K'al'ah, the foot of the castle, or But Khánah, the idol temple."[61]

On that occasion, Rawlinson had attempted to ford the river near Bani Khelan, but the crossing—passable only in summer and early autumn—was seasonal. Travelling in May, he was ultimately forced to abandon the attempt.[62]

A second opportunity arose in 1844, when Rawlinson was able to travel from Kermanshah to Sulaymaniyah in the company of Felix Jones, a commander of the Royal Indian Navy. There, the two men parted ways: Jones—unwell at the time and the only one to leave a written record of the journey—headed straight for Baghdad via the Sagirma Pass, while:

> "Major Rawlinson and his party, on their return, pursued the route by Karadagh, and along that range to the ruins of an ancient temple named But-Khane. Thence, keeping the Abi-Shirwan to his left, he passed through Kileh Tabizan-Shukeit and Shirwaneh, where he crossed the river to the village of Khanakin on the Holwan."[63]

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[60] On the Jaf migration routes see EDMONDS 1957b, 147–148.

[61] RAWLINSON 1839, 30.

[62] RAWLINSON 1839, 29.

[63] JONES 1857, 212.

This passage, together with the geographical coordinates of the locations mentioned, is all that remains of Rawlinson's crossing. Usually sparing in his publications, he would only in 1868 eventually publish a note on the monument of Paikuli and its bilingual inscription he had at last succeeded in reaching.[64]

C.I.

3.3. Beyond the peaks: journeys across the Zagros Mountains

3.3.1. From Baghdad to Kermanshah: the southernmost path

The southernmost route was one of the two most common paths in the late 18th century since it was in fact one of the fastest to reach Iran from Baghdad. Despite Sulaymaniyah's new foundation as the capital of Baban's Emirate, British travellers often favoured the southernmost route to reach Kermanshah and Fars more swiftly. Among the travellers considered in this paper, those who followed this path were J.S. Buckingham, Sir R.K. Porter, and C.J. Rich. They share a less 'military' style as they often enrich the narrative with a description of local customs and traditions to make the surroundings more familiar to the reader.

Buckingham[65] does not travel for military or diplomatic purposes, but "the utmost care was taken to ensure as much accuracy as was attainable, by recording all the observations".[66] His journey to Kurdistan and Persia in 1816 was the last stage of a wider itinerary he had previously started in Palestine.[67] Buckingham's peculiarity lay in his attempt to mix with the local population as much as possible, even assuming a local appearance and name and refusing to be accompanied by other Europeans.[68] In order to mix better with the Islamic population, Buckingham decided to assume the identity of an Egyptian Muslim named Haji Abdallah ibn Suliman min Massr. To further camouflage himself with the Muslims, Buckingham took as his escort Haji Ismael, an Afghan who spoke Persian, Turkish and Arabic, and had crafted seals and rings for Rich.[69]

Like Buckingham, Porter travels with the intention of describing the region of Kurdistan, "a picturesque country and people", which until then had been little explored and, consequently, little described.[70] In his accounts, he often expresses his personal opinion of the cultures he encounters, although not necessarily in positive tones.[71] In addition to the 'ethnological' and geographical data, Porter is also keen to trace the march of Xenophon described in his *Anabasis*.[72] Conversely to Rich and Buckingham, Porter travelled in the opposite direction, from Kermanshah to Baghdad as part of his circular travel which started in Odessa, proceeded clockward and ended in the Caucasus. His journey began on the 30th of September 1818, reaching Baghdad two weeks later. About his account, it is important to highlight that after crossing the Ottoman border, many of his companions had fallen ill, often causing prolonged stops and travelling at night.[73]

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[64] See the contribution of Marchetti and Salih &Terribili in this volume.

[65] The main information on his life was taken from the STEPHEN 1886, 202–203, and the incomplete two-volume autobiography (BUCKINGHAM 1855).

[66] BUCKINGHAM 1827b, viii.

[67] Buckingham recounted his travels in four different collections of publications, of which the volumes containing his *Travels in Assyria* are the latest group.

[68] BUCKINGHAM 1827b, viii.

[69] BUCKINGHAM 1829a, 2–4.

[70] PORTER 1822, i–v. For an interesting portrayal of Sir R.K. Porter, see BARNETT 1972.

Buckingham's and Porter's accounts are significant considering that the other witness, Rich, unfortunately did not have time to revise the raw data he had recorded during his journey along the southern route in the spring of 1820.[74] Nevertheless, Rich's diary was included as an appendix to his most famous work edited by his wife Mackintosh,[75] after his death. The text merely details the stages and distances between one location and another, while the historical observations are reported in a dry style, far removed from that used for the rest of the *Narrative*.

Despite the stylistic differences, it is possible to reconstruct a common route from Baghdad to Qasr-e Shirin. From this location, the three travellers proceed in different directions: Rich turns south-west to Kifri and then returns to Baghdad, while Buckingham and Porter proceed due east, crossing the Zagros and entering Iranian territory.

The route begins by exiting the north-eastern gate of Baghdad called Imām Azam,[76] then continuing in a north-easterly direction. The first stop is near a well called Orta Bir by Buckingham and Bir al-Abd or Moghussul by Rich.[77] Even if both travellers report a different name, the well is the same since the next step includes a caravanserai called by both Orta Khan. Afterwards, the travellers proceed due north-west until they reach the river Diyala near Khan-i Seid, just below Baqubah. Here, Rich also reports the presence of a ruin between Baqubah and Buhriz,[78] a small town located a few kilometres east of the former.

Afterwards, the travellers continue parallel to the Diyala, following the left bank towards north-west. In this section of the journey, they cross a canal or stream[79] and a shrine dedicated to an important Imam[80] until they reach the centre of Shahraban, where they make a stop. Here, all three travellers report the presence of ancient ruins, but their descriptions differ each other. Indeed, Buckingham refers to some ruins situated near two villages far from the town, Mendeli and Ghilan. He does not directly visit these ruins but, from the information he has obtained, he believes they are related to Alexander the Great's passage from Susa to Ectabana.[81] Rich, on the other hand, describes two different sites, Eski Bagdad and Zendan, which he dates back to Sasanian times.[82] Like Rich, also Porter describes these ruins as ancient, but he is unable to visit them because of the illness that affected his party. However, he agrees with the opinion of D'Ancarville who identified these ruins as the ancient Apollonia.[83]

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[71] See VASSALLI 2023, 203–205.

[72] PORTER 1822, i–v.

[73] PORTER, 231–232.

[74] Rich died the following year, in 1821. For his life, beyond the *Narrative*, the two other main sources are STEPHEN 1896, 110–111, and ALEXANDER 1928.

[75] RICH 1836b, app. 5.

[76] BUCKINGHAM 1829a, 4.

[77] The part of the journey between Baghdad and Baqubah is poorly described by Porter for the reasons explained above.

[78] RICH 1836b, 376.

[79] Rich refers to it as the "Mehrout Canal"; Porter and Buckingham describe it as a small river, but they provide different names: "Mucthar" according to the former and "Nahr el Shahraban" (note that *nahr* means 'canal') according to Buckingham.

After Shahraban, the route ascends the Hamrin Hills, which Buckingham calls by the more local name of Jebel-el-Shahraban. He describes this hilly stretch as one of the most dangerous and, in fact, before reaching Kesrabad (Qizil Rabat) the group he is travelling with has a skirmish with some local horsemen.[84] Upon reaching safety in Kesrabad, Buckingham learns to pray in the Islamic manner to better maintain his character and later visits some local ruins, which Rich makes no mention of in his diary.

> "[… W]e came upon a large and remarkable heap of ruins, about a mile to the north-east of the town. It was in form and extent nearly like that of the Makloube, the supposed castellated Palace at Babylon, except that it was less in height, and whatever buildings had once occupied this site had been raged nearer to the ground. It was still, however, sufficiently high to form a conspicuous object on the plain, even from a distance, its highest part being forty or fifty feet above the common level.
>
> By the people of the country, it is called Giaour-Tuppé-sé, or the "Hill of the Infidels;" and it was asserted by our guide, and confirmed by many others of the place, whom we questioned afterwards, that there had been often dug up from, and found on the surface of the ruins, small idols of copper, some of them re-presenting men in a sitting posture, without seats to support them; which, from their size and material, as well as from their attitudes, imitated by those who described them to us, must have been of the same kind as one of the Babylonian idols in Mr. Rich's collection.
>
> In examining the surface of this mound, we saw in many parts that had been excavated, portions of excellent masonry, in large, square, red, burnt bricks, some layers of thick lime cement, with others of what seemed to be either a very fine stucco,

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[80] "Imam Seid Mokdad al Kundi", according to Rich, or "Imam Zada", according to Porter, while today, on the road between Baqubah and Saharaban there is a shrine dedicated to Imam Al-Sayyid Ahmed, son of Moses al-Kadhim.

[81] Buckingham 1829a, 12. Buckingham mentions the cities of Mendeli and Ghilan and considers the latter to be connected with the passage of Alexander the Great. Mendeli also appears in Rich's map at the beginning of the first volume, but it is located far away and north-west of Shahraban, while the ruins he describes are just below the city.

[82] Rich 1836b, 376–377.

[83] Porter 1822, 237.

[84] Buckingham 1829a, 16–17.

> or else a peculiar kind of white marble. There were no appearances of any outer wall that encircled the whole, though possibly such might have existed beneath the rubbish. The interior part seemed to have been composed of many small buildings, like the Palace at Babylon; and indeed similar edifices are still seen through-out the East, where all the domestic offices are included within the same area with the principal abode. Having my compass with me, and pretending to use it to ascertain the precise point of the Caaba for evening prayers, I obtained from the spot the bearings of such surrounding objects as were in view."[85]

In a long digression, Buckingham reconnects these ruins with ancient authors' description of the route that the emperor Heraclius would have taken to reach Ctesiphon from the north.[86] At the end of his analysis, Buckingham links the ruins with the Sasanian palace of Dastgerd, mentioned as Daskara or Daskarat al-Malek in Arabic sources.[87]

Between Kesrabad and Khan-e-kin (Khanaqin), both Rich and Buckingham pass hills that are called 'Yenitcheri Tepeh' by the former,[88] while the latter uses two different oronyms: Nimrod-Tuppe and Shah-Tuppe.[89] In fact, here Buckingham reports a tradition according to which on the first hill stood a palace built by Nimrod, while on the second there once existed 'a pleasure-house' or the tomb of an Oriental ruler on a pilgrimage to Mecca from India.[90] On reaching the small town of Khan-e-Kin, Buckingham recounts another tradition according to which there were some buildings in the town that were attributed to the mythical architect and sculptor Farhād, one of the main characters in Khosrow and Shirin's novella.[91]

The next stages involve crossing the Elwan River, mentioned only by Rich, and passing through a fort of modern construction called 'Kalai Selzi' by Rich or Khallet-el-Subzey by Buckingham.[92] Later, both travellers reach the last stop on their route, Qasr-e Shirin. Here, Rich mentions in passing the ruins of Hawsh Kuri, spelled Haoush Kerek.[93] However, in his diary, he provides neither a description nor a chronological reference. Instead, Buckingham tells us of at least two different sites, the first of which is located just inside Qasr-e Shirin and is referred to by the locals as Qasr-el-Kebir or Qasr-e Shirin. Buckingham finds the excuse of having to wash himself before prayer to visit the ruins alone. According to him, it would be a military fort that he describes "in the Saracenic style", built "like all the old Eastern castles", on a natural elevation.[94] Buckingham then notes the presence of a second building called Qasr-el-Sughrye, located on a small embankment near the fort, behind which are the remains of an ancient city.

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[85] BUCKINGHAM 1829a, 21–22.

[86] BUCKINGHAM 1829a, 23–29.

[87] GIGNOUX 1996.

[88] RICH 1836b, 378.

[89] BUCKINGHAM 1829a, 31.

[90] BUCKINGHAM 1829a, 31.

[91] BUCKINGHAM 1829a, 34. About the influence of the novel of Khosrow and Shirin see below and the conclusions for this part of the paper.

[92] RICH 1836b, 378; BUCKINGHAM 1829a, 36.

[93] RICH 1836b, 379.

> "Besides the ruin called Kassr-Shirine, which gives name to the place itself, there are here extensive remains of a large city, stretching for a mile or two to the eastward.
> The native Persians still preserve the tradition of these works being the remains of the city of Hellowla, which they say be-longed to the Infidels before the days of the Prophet, and was founded by Kesra the king. This opinion is consistent with the testimony of history, and each thus confirms the accuracy of the other.
> D'Herbelot, under the article Khosrou Ben Hormouz, says: "Ben Shohnah dit que Chosroes batit une ville, du nom de sa maitresse Shirin, situé entre les villes de Huluan et de Khanekin" This corresponds precisely with the situation of the present Kassr-Shirine, which is just midway between Halouan, the present Zohaub, and Khan-e-Keen, the last station we had passed on our way.
> The Arabic geographers and historians place the city of Hellowla, which they say was founded by Khosrou Parviz, and used as one of his favourite abodes, at six or seven fursungs from Khan-e-Keen; which also corresponds with the site of the present remains. Some of the native Persian authors indeed say, that Khosrou, or Kesra, built seven kassrs in seven different places, for the accommodation of his beloved Shirine, one of which was at Hellowla.
> It is evident, therefore, that all advert to the same place; and as Hellowla is spoken of as existing at the period of the palace in question being built, it might have been also that the name of Shirine was thenceforth conferred on Hellowla as a farther mark of honour."[95]

Unlike Rich and Buckingham, Porter does not cross the town of Qasr-e Shirin but only the ruins situated outside the town. He provides a detailed portrayal of the ancient site,[96] which, according to him, was built by Farhād, the legendary sculptor and architect at the time of Khosrow II:

> "Along the alpine ridge we mounted,[97] runs a massy wall of large hewn stones, which in places, like a curtain, closes the openings left by nature in the rocky bulwarks of the country. It had evidently been intended for a defence against any hostile approach from the eastward, and on passing it we went through what had formed one of its gates. Journeying on a mile or two farther, a second wall still higher and stronger,

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[94] BUCKINGHAM 1829a, 37–38. As Buckingham observes (BUCKINGHAM 1829a, 41), John Malcolm and Kinneir identify these ruins with the above-mentioned Dastgerd of Khosrow, a hypothesis that Buckingham rejects in view of the geography of the place, which does not agree with that described in ancient sources.

[95] BUCKINGHAM 1829a, 38–39.

[96] PORTER 1822, 212–214.

[97] As observed in the introductory paragraphs, Porter reached Qasr-e Shirin from Kermanshah, after crossing the Zagros, while Rich and Buckingham arrived at Qasr-e Shirin from Baghdad. The "alpine ridge" refers to the Zagros mountains that Porter had crossed earlier.

> presented itself to our sight, the front of which had a northeastern aspect; and from it ran a third wall along a rocky ridge, nearly due east, till it joined the other wall, partly inclosing a vast angular space of ground. On various spots lay large stones of a great length, and hollowed in the middle, as if they were the remains of some ancient covered channel to convey water. The natives, to this day, call it the aqueduct of Khosroo Purviz; saying, it was one of the works constructed by Ferhaud, to purchase the smiles of his beloved Shirene. Numerous fragments, and continuations of the great rampart-wall, tracked our way while we rode westward, till these vast remains met the ruins of another wall; the position and extent of which seemed to declare it to have been one side of the battlements of some ancient city of consequence. On enquiring of an intelligent travelling Arab who had joined us , he informed me that I did not mistake, and that it was called Kesra- Shirene; […]."[98]

Furthermore, according to Porter, these ruins correspond to the ancient palace of Khosrow II, Dastgerd, which Buckingham identified with those encountered before reaching Qasr-e Shirin.

> "We are told that the city of Dustajerd was the most stationary royal residence of Khosroo Purviz, and that it contained his most superb palace, treasury, and public buildings. […] If we compare the movements of the vanquished king, after the celebrated battle I have just mentioned, with the situation of these immense remains , I should think no doubt can exist of their being those of Dustajerd. The long traditionary name given to them, of Kesra-Shirene, (Khosroo-Shirene,) certainly designates some favourite residence of that royal pair; and, as we find it attached to walls of such extent, they could be nothing less than those of a city."[99]

After Qasr-e Shirin, Rich's route diverges from that of the other two. Indeed, he turns west to reach the Diyala, which he crosses at a village called Bin Kudreh. He then proceeds along the right bank of the river, south-westwards, to Zengabad, and then continues north-westwards to Kifri and from there back towards Baghdad.

On the contrary, Buckingham heads eastwards in the direction of Iran, until he reaches Zahab.[100] There, Buckingham picks up a letter from Dr Hine of the British Residency at Baghdad, who informed Buckingham about the presence near Zahab of an ancient ruin called Khallet-el-Yazdegerd by the Kurds, at the foot of which stood a very extensive city called Zarda or Garda, which Dr Hine identifies with the Dastgerd of Khosrow II.[101] However, despite the investigations made by his Afghan escort, the only fort they manage to visit turns out to be a very small, modern building, underneath which, stands a small modern settlement.[102]

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[98] PORTER 1822, 212.

[99] PORTER 1822, 214–215.

[100] In his account, Porter mentions Zahab as the first town after the Ottoman borders, but his party rested in a caravanserai close to the city, called "Pool-i-Zohaub", 'the bridge of Zahab', see PORTER 1822, 208–209.

[101] BUCKINGHAM 1829a, 50.

[102] BUCKINGHAM 1829a, 50–51.

After Zahab, Buckingham reaches Serpol-e Zahab, then crosses two passes called Boghaz, until they reach the ancient Roman-style arch of Tāq-e Garā, simply called Taq by the locals, located at the foot of the Zagros Mountains.[103]

Once again, Porter stands out for his more detailed descriptions, which reveal much about the local traditions and the significance of the tale of Khosrow and Shirin. Indeed, he had noticed the monument from a distance, so he asked the guide what it was, and the latter replied that the monument was a palace of the ancient kings, called "Tackt-i-Gara", meaning 'Throne of the Mountains', because it was built by the will of Khosrow Parviz in honour of Shirin.[104] However, on approaching the monument, Porter immediately understands that the palace consists only in a solid arch of Western origin.[105]

Past the arch, Buckingham proceeds over the Zagros Mountains until he reaches two caravanserai, one ancient and one modern, the latter named Khan-el-Tāq, literally 'caravanserai of the arch,' which also serves as the border between Ottoman and Persian territory. This caravanserai is also mentioned by Porter, who calls it "Shah's Adda Khaun". After the caravanserai, Buckingham continues until "Kerrund" (Kerend-e Gharb); [106] the next significant stop is the town of "Harounabad" (Eslamabad-e Gharb). From there, he continues to a cliff called "The horse-shoe-destroying Hill", i.e. "Kotel-Nal-Shikund", and proceeds until he reaches Kermanshah.[107]

3.3.2. From Sulaymaniyah to the central Iran by Sinandaj or Baneh

After his return to Baghdad in the spring of 1820, Rich undertook a second journey from Baghdad to Sulaymaniyah,[108] which he then used as a base to explore the Zagros territory to the north-west of the Kurdish city. Using a circular route, Rich set off from Sulaymaniyah in July 1820, crossing the southernmost of the three passes—Goizha, Azmar, and Qaiwan—north of the Kurdish city to reach Sina, an important centre of Iranian Kurdistan. From there, he turned back following a more northerly route than the previous one, passing through Baneh and reaching Sulaymaniyah through the central pass. Fortunately, unlike the previous one, this second journey is described in detail in the *Narrative*, edited by his wife Mackintosh.[109]

On 17 July 1820, Rich leaves Sulaymaniyah and crosses the Goizha pass, considered to be the easiest of the three to cross the Zagros.[110] The first stop after the pass consists of the village of Benawillee, located north-west of Sulaymaniyah, which is part of the district of Shehribazar, whose main town is Karatcholan. Afterwards, Rich's company reaches Gherradeh (Shehribazar), and then heads east, passing to the left of Mount Serseer, until they reach a small bridge over a ravine and a wide glen. After a series of valleys and ravines, the group crosses the Tenguzhee River, another name for the Karatcholan, and arrive at Doladreizh, where they make a stop.

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[103] BUCKINGHAM 1829a, 58–59. It is the Tāq-e Gara monument.

[104] PORTER 1822, 207.

[105] PORTER 1822, 207–208.

[106] "Karund" in Porter's account.

[107] The route of Porter is almost the same, the only difference consists of that Porter does not mention any river or spring and, according to him, there is a caravanserai in the valley of Mahadesht, bringing the same name.

[108] For the journey from Baghdad to Sulaymaniyah, see Insom's contribute to this article.

[109] RICH 1836a, 159–267.

[110] RICH 1836a, 159.

After an ascent and a subsequent descent, the area opens up into a wide valley with several isolated elevations, close to the border between Ottoman and Persian territory. The road coming from Doladreizh splits in two: the northern branch continues towards Beestan, while the southern branch continues towards Ahmed Kulwan. Rich and his company take the southern route and reach their cantonment under the hills about 1 mile north-east of Ahmed Kulwan.[111] According to Rich, the entire area, which also includes the next valley around Lake Zeribar, is dotted with several Sasanian ruins and castles. In fact, already on his arrival in their cantonment, Rich reports the presence of a castle, called by locals Kiz Kalassi.[112]

Unfortunately, an illness struck Rich and his company, forcing them to stay near Ahmad Kulwan for more than a week and preventing Rich from visiting Kiz Kalassi Castle. After recovering, on 1 August, the group moves north until they reach the Kizzeljee River. There, on the left side of the river, Rich reports the presence of another Sasanian castle, located on an isolated rock.

> "All things being in readiness for our removal, we set out to-day at a quarter past five in the morning, and keeping the hills close on our left, at six we arrived at the river of Kizzeljee, where it forces for itself a passage through the mountains. This place is north from Ahmed Kulwan. On the south side of the pass, or left bank of the river, on a high insulated rock, are the remains of a castle, called the castle of Kizzeljee,[113] and said to be very ancient."[114]

However, the company proceeds to the village of Beestan or Bedistan, and Rich has to wait until the next day (2 August) to visit this second castle and, on this occasion, mentions two other *tepe*s that may contain ancient ruins.

> "We clambered up the rock early this morning, in order to see the ruins said to exist on the summit. We saw some traces of wall enclosing it, and found bricks evidently of a Sassanian appearance. On the very top, which is not many yards over, a reservoir is cut in the gypsous strata, and an old thorn-tree still flourishes, which may have seen the castle in its perfect state. We had a fine view of the vale of Tattan, with the river winding through it; and several villages were to be discovered in the opposite hills,

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[111] Rich 1836a, 171.

[112] Rich 1836a, 172.

[113] Afterwards, Rich informs us that the castle is located 45 degrees NW of "Penjween", a major commercial centre in the area, where they will be staying later.

[114] Rich 1836a, 174.

> E.N.E. of us. At a short distance from the foot of the rock is an artificial mount of a circular form and flat top, like those of Tchemtchemal, Derghezeen, &c. It is called Kustum's Mount. Another of the same description, farther north, is called the Shah's Mount. On some of the neighbouring hills urns of earthenware, of extraordinary dimensions, have been found."[115]

Unfortunately, the entire group falls ill again with the exception of Rich's wife and Mr. Bell, preventing them from moving for almost a dozen days. On the 13th of the month, the company leaves Beestan heading south and crosses the Tattan Plain and then the Kizzeljee Plain, reaching Penjween after a four-hour march and despite Rich still being ill. Penjween is described as an important trade junction frequented by caravans reaching Hamadan in eight days and Sinna in four. After resting for a further week, the company set off again towards the south-east and crossed the border between Ottoman and Persian territory, passing over a wooden bridge built over an often-dry river that flows into the Kizzeljee.[116] Beyond the bridge, the second important valley around Lake Zeribar opens up. The company reaches a camp two miles south of the lake. Here, Rich reports the presence of three Sasanian castles, including the ruins of Meriwan Castle:

> "On a hill due south of us is the castle of Meriwan, now in ruins; I believe it is Sassanian. On the very pinnacle of another hill, forming the south side of a valley about three miles broad, which runs up east to the foot of Zagros, are the ruins of two Sassanian castles, bearing S. 55 E. and S. 60 E. of our camp, distant about two or three miles."[117]

Throughout the rest of his route, Rich will not point out any more ancient ruins of possible Sasanian origin.

Leaving the camp south of Lake Zeribar, the company continues through the Meriwan and Ziribar hills to the village of Gueizakwera. Afterwards, they cross the Aserabad or Garran river passing over a three-arch bridge built by Aman ullah Khan, and then cross the Garran pass to the Kakor Zekria river. The group then passes through a narrow valley to the village of Jenawera or Meriwan, where they stop. The next day, the company proceeds in a south-easterly direction, passing near "an artificial mount", which according to the locals hides a castle, but not for Rich.[118] After passing the village of Berruder, the group reached Doveise, the last stop before arriving in Sinna (Sanandaj).[119] However, Rich and his company do not stop in the city, but in a garden located a quarter of a mile south of the city, called

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[115] Rich 1836a, 177–178.

[116] Rich 1836a, 186.

[117] Rich 1836a, 188–189.

[118] Rich 1836a, 194–195.

[119] As Rich observes, Sinna is the short name for Sinendrij.

Khosrowabad.[120] They stay there for six days, from 25 to 30 August, before returning to Sulaymaniyah.

The return route involves following a more northerly route than the previous one back to Sulaymaniyah via the central pass between the three north-west of the town. The journey proves to be more difficult than the outward journey due to Rich's poor health and some Iranian figures trying to take advantage of Rich's role as British Resident for personal gain.

Leaving the garden of Khosrowabad, the company heads north, gradually ascending the mountains, until they climb Mount 'Allah u Khoda,' which is connected to the Bazir Khani mountain range, a branch of the Zagros. The companion passes by the plains of Ban Leilak, until it reaches the village of Bayenko, north of Sinna. From the village, the caravan road proceeds northwards to Tabriz, while Rich's company takes several paths that curve north-west towards the Zagros.[121] The next stop is the village of Gulane, located about 2-3 days' journey from Banna, and where the Kereftoo quarries are located.[122] Next, the company climbs and descends several hills, until they reach the Kizzel Ozan River, which rises 2 "farsakh" away on Abbas Bey Mountain.[123] Next, the group crosses an area used by the Sulaymaniyah tribes for herding, passes through a narrowing valley until they reach the village of Kelekowa. From that point onwards, Rich and his group continue through the Zagros following an often zig-zag path and passing through the villages of Soormoosi, Kara Bokra, Hajee Mahommed, Soota, Meek, and Surene.[124]

On the morning of 5 September, they reach Ahmedabad or Ahmedava and later arrive in Banna or Berozeh (Bane).[125] There, Rich is forced to stay in town Khan of Sinandaj, who is visiting Banna and would like to receive him. However, the Khan is kept waiting for several days and it is two days later that Rich is finally received by the Khan. Despite this, Rich's impression is rather negative.[126]

On 9 September, Rich finally manages to leave Banna, and they continue north-west to the village of Swearwea (Soviru?), where they are robbed of some horse harnesses and some silver weapons. Two days later they also leave Swearwea for Nweizhgeh, where the situation of Rich and his company deteriorates further. The local chief, Ahmed Bey, not only refuses to provide the company with what they need to continue their journey but, according to Rich, had made a deal with the thieves from Swearwea. The situation worsens to the point that Rich fears for his life and is forced to flee the village, abandoning many suitcases.[127]

From there on, Rich's company quickly continues to cross the border between

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[120] Perhaps, it corresponds to today's Khosro Abad Mansion of Qajar origin.

[121] RICH 1836a, 222–224.

[122] RICH 1836a, 225.

[123] RICH 1836a, 225–226.

[124] RICH 1836a, 227–240.

[125] RICH 1836a, 240–245.

[126] RICH 1836a, 243.

[127] RICH 1836a, 255–257.

Turkish and Persian territory after climbing Mount Bloo and crossing the Banna river. The next stops consist of the village of Merwa, the summit of Mount Gimmo (i.e., Gamo), the village of Deira (Dere), and then downwards passing the foot of Mount Serseer (Sarshiw), until they reach the Siwail River, a tributary of the Qalachwalan. They follow the river to the Shehribazar plain, reaching Qalachwalan, the ancient capital of this region of Kurdistan. The last stops consist of the village of Sulimanabad or Sulimanava (Sitak?), Mount Azmar and after crossing the pass of the same name, they arrive in Sulaymaniyah on 15 September.

3.3.3. From Sulaymaniyah to Tabriz: the northernmost path

The passage through the northernmost pass of Sulaymaniyah to reach Iranian territory was described by Porter as the final stage of an almost circular route from Odessa to the Caucasus. The journey is a continuation of the one analysed above from Karmanshah to Baghdad, where he remains a guest of the British Resident. After resting for a month also due to the illness that had affected many of his fellow travellers, he crossed the Zagros in mid-December 1818, arriving in Tabriz before the end of the year. Along the route Porter does not report the presence of any ancient sites, with the only exception of a *tepeh* that probably conceals the remains of an ancient castle.

Porter left Sulaymaniyah on 13 December 1818, taking advantage of the absence of the local Pasha, who wanted to detain them, but Porter was in a hurry to cross the Zagros. The company continued north-west in the direction of the Pera-mi-goodry high ground, and then reached the Gavian pass and the village of the same name.

Beyond the pass, they cross a valley crossed by the Sewal and Kara-Cholan rivers, fording the latter twice, and then stop at the village of Kunamasi, on the banks of the Qalachwalan. Having crossed the river a third time, Porter and his company ascend the Zagros Mountains, passing through the villages of Mahott (Mawat) and Jagera (Zhazhila or Zazla ?), and then passing by the Tahite (Tayit Bridge or Dashti Khane) and Daroo Mountains, until they reach the Tahite River (Little Zab).[128] They then ford the river and pass through several mountain villages such as Tahite, named after the river, Moznavi (Mazanabad), and Baytoush (Bitush). In Baytoush, Porter takes the opportunity to make a few remarks about Xenophon's passage through this area of Kurdistan. He also delves into the customs and history of the village and describes the Kurdish tribal system.[129]

Leaving the village of Baytoush, the company climbs Mount Daroo to the north-west, then descends to Sardasht, where they stop for the night. On 16 December, the company leaves the citadel and reaches a '*yawning chasm*,' and later, a valley crossed by the Kaloo-Zug River (Little Zab).[130] They cross the watercourse over a bridge, located south-east of Mount Daroo and, after a half-hour walk, reach an artificial hill. Here, Porter points out the only possible presence of an ancient ruin hidden under the hill, where the village of Kala Robat once stood.[131]

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[128] For these settlements see the map in EDMONDS 1957a.

[129] PORTER 1822, 465–472.

[130] The Little Zab River is referred to by different names depending on the stretch.

Next, the company crosses two valleys, then passes through Urmoozan and begins the ascent of Mount Kourtak. Here, Porter fears either being attacked by the Bilbossi tribe or being stranded because of the snow. Having overcome this last danger, the company reaches the valley of the Yeltomar and later, a village of the same name, where they stop for the night. The next stretch consists of a series of hills leading up to the village of Tokta, by now in Tabriz territory. On 18 December, the company continued eastwards, climbed a final rise, and then reached Soak Boulak, the last large settlement before Tabriz.

3.3.4. General conclusions

From the evidence analysed above, some general considerations can be made about the four routes analysed, namely Bagdad-Kermanshah; Sulaymaniyah–Sinandaj through the southern pass; Sulaymaniyah–Baneh through the central pass; Sulaymaniyah–Tabriz.

First, it emerges that the routes with the most reports of ancient monuments are the southern route and the route from Sulaymaniyah to Banna via the southernmost pass. The first route is not surprising, as from ancient times it must have been the shortest way to reach the southern territories of the Iranian plateau from Ctesiphon. This route, in fact, directly connects the imperial capital with the region of origin of the Sasanian dynasty, which, even in the early Islamic period, remained the stronghold of pre-Islamic Iranian culture for a long time, both religiously and linguistically.[132] However, most of the signs are concentrated in the part of the route that fell under Ottoman rule in the 19th century. Indeed, once past the arch-shaped monument now known as Tāq-e Garā, neither Buckingham nor Porter report any ruins as far as Kermanshah.

As for the section from Sulaymaniyah to Banna via the Giozheh Pass, Rich's reports are all concentrated in the valley of Ahmad Kulwan, Bistan, Penjwin and in the valley of Lake Zeribar. In total, Rich reports the presence of five castles that he describes as being of probable Sasanian origin, including two near Ahmad Kulwan and Bistan and three south of Lake Zeribar, including the well-known castle of Meriwan. The presence of several monuments indicates that the area in question must have played an important border role between two regions and possibly formed part of the northern section of the sacred route from Ctesiphon to Adurbadagan. However, the presence of many castles could also be the result of later fortification, later attributed to the 'Gueber' period due to the spread of the popular story of Khosrow Parviz and Shirin, already famous in the medieval period. As Rich notes, one of the castles is named Kiz Kalassi, i.e. 'Castle of the Maiden' in clear reference to the female protagonist of the tale. The entire area north and east of

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[131] PORTER 1822, 478.

[132] CHOKSY 1997, 37–38, 45; ORSATTI 2007, 28. Even during the Islamic period, the dialect of Fārs remained the closest to Middle Persian, unlike the so-called Dari, which in this period referred to the Persian spoken in the area around Ctesiphon-Baghdad and had absorbed heterogeneous elements during the Arab invasion.

Qasr-e Shirin, the name of which means 'Castle of Shirin,' is dotted with ruins that are associated with the figure of Khosrow Parviz, even deforming original names. For instance, Porter transcribes the name of Qasr-e Shirin as 'Kesra-Shirine,' believing that the name of the locality derives from the fusion of the names of the protagonists of the novella Khosrow and Shirin. The interest in the fictional figure of Khosrow also leads many travellers to try to identify the site of the residence of the ruler Dastgerd or to attribute several monuments to the famous architect and sculptor Farhād, another main character in the novella of Khosrow and Shirin.

A second interesting observation emerges when analysing the northernmost route described by Porter. In this case, interest is aroused precisely by the Scottish traveller's lack of signposts with the exception of an artificial hill, which, however, is not described as ancient. As is well known, during his journey, Porter reconnects many of the sites or landscapes to historical events described in classical sources, such as Heraclius' penetration of Iranian territory during his own war with Khosrow Parviz, or the wanderings described by Xenophon in his Anabasis. However, along the northern route, he only manages to reconnect with classical sources during the stop in Baytoush. It is possible, therefore, to speculate that the northernmost route may not have been taken as the main route to the Adurbadagan territory, which may have passed further to the east.

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4. Highways and Byways through Central Zagros, Shahrazur, and Dinavar in Late Sasanian and Early Islamic Times

Carlo Marchetti

Abstract

This study collects and analyses various documentary sources relating to the road system of the central Zagros range in late Sasanian and early Islamic times. Focusing on the routes connecting the Mesopotamian lowlands with the regions of Shahrazur in the north and al-Ǧabal/Ǧibāl in the east, taking as reference points the two centres of Shahrazur and Dinavar, the paper aims to define a clear picture of the communication networks across these three regions.

Keywords

Historical geography, Communication networks, Sasanian Empire, Arabic and Persian sources, Early Islamic age.

4.1. A rugged territory

For millennia, the Zagros watershed has been an important landmark for the determination of transport routes, assuming a decisive role in shaping the communication networks that linked two very different territories such as the Mesopotamian lowlands and the Iranian plateau.[1]

The central part of the Zagros chain was (and mostly still is) particularly difficult to traverse, as it is characterised by some of the highest mountains in the whole ridge.[2] Consequently, this geographical feature had obvious repercussions in determining which settlement and route was preferable during the seasons of the year or even in specific moments of the day (Fig. 4.1).

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[1] For the relevance of the Zagros Mountains in the configuration of the road networks over the centuries, see BRICE 2002 and POTTS 2020, with references.

[2] "Further south, between the rivers Diyālā and Dez, the Zagros ranges are at their widest and highest, and are made up of regular folds, of mainly limestone rocks, of a height of some 4,000 m/13,100 feet, with few outstanding peaks" (BRICE 2002, 385).

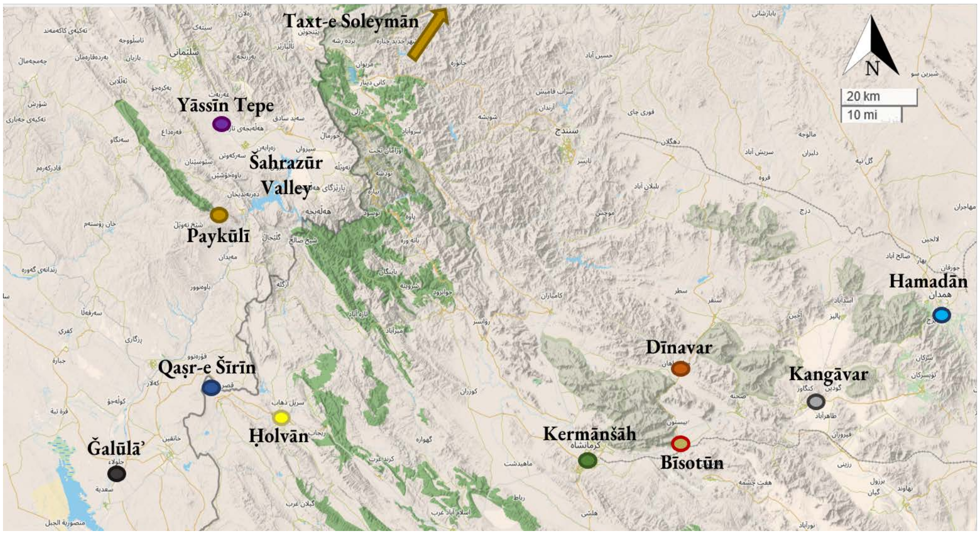

Fig. 4.1. The central Zagros area spanning today's border between Iran and Iraq (© 2024 OpenStreetMap; drawing by the author).

The accounts of post-Sasanian authors, mainly in Arabic but later also in Persian, provide a wealth of data for determining transit and communication routes, itineraries, and origin–destination relationships between regions, districts, and settlements (large and small). This study had the aim to understand them and possibly establish a picture of the network of connections between certain points and try to locate intermediate or minor centres in the routes thus identified. The results are valid for the period covered by the sources, *i.e.* between the late Sasanian age and the 11th/12th centuries. Within this time span, however, it was possible to observe how the importance of the same sites varied depending on the general conditions of the region and the connections in which they were located.

Regarding the area encompassing the east–west corridor of the Zagros Gates (the pass marked by the Ṭāq-e Gerrā),[3] the sources report with considerable precision the name of the various stations on the main road, but most of the time overlook to mention important features of the local byways, which need to be reconstructed according to the geographical framework of the major itineraries. Moreover, it is not always possible to reconcile the various systems of time or length measurement used by ancient writers, not only because of the different ways of calculating distances, but also because the sources generally do not specify the period of the year in which the route they describe was used. In fact, weather conditions had an impact on the choice of the itinerary and therefore on the length of the journey.

Concerning distances, Middle Persian (Pahlavi) materials do not offer great information, which is abundant, instead, on toponyms and myth-historical narratives of city founders. Arabic and Persian authors, however, have more data on communication networks.

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[3] Potts 2020, 56, with previous bibliography. Isabella L. Bird wrote a vivid account of the ascent to the pass in January 1890, travelling in a caravan of mule and horses; Bird 1891, 87–88.

In this regard, three systems of measurement seem to have been mainly employed in the Islamic accounts: the *farsaḫ* (فَرْسَخ, ‘parasang’; pl. *farāsiḫ* فَراسِخ), for linear distances (although not always fixed); the *sikka* (سِكّة, lit. ‘station’; pl. *sikak* سِكَك), for the number of intermediate stops on the route; the *marḥala* (مَرْحَلة, lit. ‘a day of march’; pl. *marāḥil* مَراحِل), for time reckoning. Other common lemmas are *barīd* (بريد, lit. ‘courier’, but more probably intended as the distance covered by a courier; consequently, the plural form seems to not have been employed in this context) and *manzil* (منزل, ‘resting place’, also ‘camp site’; pl. *manāzil* منازل).

In particular, comparing the various accounts of Islamic times, the value of the *farsaḫ* tends to diverge in space (from region to region) and in time (during the centuries), and it is often not even the most common way of measuring distances in a specific area. Thus, a single itinerary may be measured with more than one system in the same report. In this respect, the Persian geographer Mostavfī Qazvīnī provides in his *Nozhat al-qolūb* an enlightening summary of all the variations of the *farsaḫ* up to his time (14th century):

> “When discussing the Length of the League (*Farsakh*) in the earlier part of this work, it was explained how in ancient days the learned, in the reign of king Kay Qubād the Kayānian, established the length of the League to be three miles, which is equivalent to 12,000 Common Ells (*Dhirāʿ Khalqī*), which is other than the measure known as the Tailor’s Cubit (*Gaz-i-Khayyāṭī*). Now in the *Diary* of Malik Shah it is recorded that this monarch, becoming acquainted with the varying lengths of the Farsakh in his journeyings over the many roads of Īrān and of his other kingdoms, gave orders to measure the (various) Farsakhs. And it was found that while the League was of 15,000 paces (*Gām*) in Khwarazm more or less, in Ādharbāyjān and Armenia it was only of about 10,000 paces; and throughout the Two ʿIrāqs, Kurdistān, Luristān, Khūzistān, Khurāsān, Fārs, Shabānkārah and Diyār Bakr, with their neighbouring districts, the Farsakh measured but 6000 paces. Then, furthermore, in the provinces of Rum (Asia Minor), Gurjīstān, Arrān, Mūghān and Shīrvān, the Farsakh was not in use, distances being counted in Stages (*Manzil*) and by time. Malik Shāh, therefore, throughout his dominions established the use of the League which averaged 6000 paces, and the distances along the roads that he traversed are stage by stage set down in his *Diary* after this computation. Later, in the reign of Ūljāytū Sulṭān the Mongol, when after this same fashion various roads were measured, and mile-stones set up, the Farsakh was counted, approximately, as of 8000 Tailor’s Cubits (*Gaz-i-Khayyāṭī*). Now, the Common Ell (mentioned above) being but two-thirds of the length of the Tailor’s Cubit, and the average Pace (*Gām*) being of greater length than the Tailor’s Cubit, all the above estimates of the League work out to about the same result, and this may be taken as equivalent more or less to the Farsakh of 12,000 Common Ells, as estimated by the learned men of former days.”[4]

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[4] Translation quoted from Le Strange 1919, 160–161. For the Persian text, see Le Strange 1915, ١٦٣-١٦٤.

Qazvīnī records three different stages in the measurement of the *farsaḫ*, one legendary, dating back to the period of the Kayanian king Kay Kawād,[5] and two historical, pertaining to the reign of the Seljuk sultan Ǧalāl ad-Dawla Malikšāh (1055–1092)[6] and to that of the Ilkhanid sultan Öljaitü (1282–1316).[7] Significantly, of the two later rulers that according to Qazvīnī cared for the reconciliation of linear measures in their domains, none found an already coherent system in all the territories visited, with the result that both decided to introduce new equivalences.[8]

Given these multiform and composite ways of measuring, in the worst case the accounts on the linear distances of the routes cannot always be reconciled. Moreover, sometimes different authors describe the same itinerary giving different distances in (apparently) the same unit of length, most often the *farsaḫ*. A possible explanation of these divergences may reside in deviations in the routes followed, which in turn may depend on:

- The personal experience of the author, or the data in the account used as a reference, especially when later authors only report information by previous sources without contextualisation;
- For first-hand descriptions, the season in which the journey takes place. In winter, high passes on the Zagros become unusable because of heavy snowfall; the closure of the passes, therefore, forces travellers to change route, sometimes lengthening it.[9] Finding intermediate stations where to stop may become also a necessity, depending on temperatures and weather.[10] In summer, animals need grazing at higher altitudes, and travellers are compelled to follow routes either

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[5] No direct link can be traced with certainty between this tradition of mythical Kayanian lore and Achaemenian units of length, when the most plausible measurement for the parasang seems to have amounted to something between 4.5 km and 5.5 km (5.33 km according to the Greek reckoning used by Herodotus): see BIVAR 1985, 628–630, 638.

[6] This sovereign had the reputation of being a patron of arts and literature, and both his honorific regnal (*laqab*) and personal names, Ǧalāl ad-Dawla and Malikšāh, gave the appellations to the new solar calendar developed during his reign, known as *ǧalālī* or *malikī*; see BOSWORTH 1991, 273–275, and THOMANN 2021.

[7] Öljaitü was also renowned for patronising arts and architectural works, and as the final builder of the new Ilkhanid 'capital' of Sūlṭaniyya: see MORGAN 1995.

[8] The difficulties in reconciling different accounts on the length of the parasang were still felt in the late 19th century, as HOUTUM-SCHINDLER 1888 clearly summarise.

[9] BRICE 2002, 385: "These mountains receive an appreciable precipitation, of 100 mm/40 inches or more, from the winter cyclones. This falls mainly in the form of snow, which melts through the summer to supply the extensive pastures of the high valleys and plateaux between the ranges. Summer storms here provide a further water-supply".

[10] According to BIRD 1891, 84–98, due to sleet and snowstorms the distance between Sarpol-e Zohab and Kermanshah was covered in ten days in January 1890. Similar conditions almost blocked the road near Bisotun and Kangavar in February 1890, resulting in the death of several people (BIRD 1891, 119–135). The weather was such that "in snow and mud gallops are impossible, and three miles an hour is good going" (BIRD 1891: 120), but in the worst situations the caravan could ride no more than "nine hours at a foot's pace in a temperature of 20°" (20 °F equalling -6 °C; BIRD 1891, 134). Sometimes, however, the march could go on speedly for eight or nine hours a day (BIRD 1891, 119, 126, 133) and, in a good environment, "we marched twenty-four miles in eight hours without any incident, and the 'heavy division' took thirteen hours" (BIRD 1891, 141, noting that muleteers followed the horse riders at a slower pace).

higher up the mountainsides or lower down along the banks of rivers. Rivers, however, might become impassable, especially after the spring thaw, when abundant floods submerge fords and small bridges, which, in turn, simply disappear from the accounts and the maps if they are not rebuilt. Older information, therefore, becomes unreliable as time passes by;
- The route itself, as particularly steep passes may force caravans to seek longer but less difficult passages on the slopes, while horsemen would follow more direct ways. Dangerous places for non-geographical reasons tend also to be avoided when travelling in small groups, while large caravans are generally (but not always) escorted, and are therefore slower;
- The means of transport used: on foot or on horseback, with or without an armed escort, in a caravan (and in this case it may also depend on the type of goods transported and the pack animals used, donkeys, camels, or oxen). Travellers could use a combination of these means, and proceed mounted or dismounted according to the availability of rides and companions, not excluding ferries, boats, or rafts for crossing large streams and rivers.

All these reasons may determine wide divergences in the reports, not considering the authors' purpose in describing a route. In this regard, documents written in the same period with a precise scope, be it administrative, economical, or military, may preserve different details than others that are driven just by purely geographical or narrative reasons.

As an example (more details *infra* in section 4.3), the 10th century accounts of Ebn Xordāḏbeh, Qūdama, Ibn Rustah, and Abū Dulaf al-Muhalhil concerning the same section of the Great Khorasan Highway between Sarpol-e Zohab (the ancient Ḥolvān) and Kermanshah differ remarkably in terms of the number of intermediate villages and, consequently, the distances between stops. To account for some of the divergences, it can be assumed that in his position as *ṣāḥib al-barīd wa al-ḫabar* ('director of the courier service and of the communications') of the province of *Ǧibāl*, Ebn Xordāḏbeh would have been more interested in giving a broader picture of the most important routes under his administration rather than detailing minor stop points and byways, as instead does Qūdama, who, as an adviser in the Caliphal administration concerned with the treasury, might have been more prone to list even small hamlets in accordance to their importance for taxation. Ibn Rustah, who was an encyclopaedic compiler rather than a traveller, may have reused previous, not updated, information, while Abū Dulaf al-Muhalhil, who may have been more concerned with entertaining than describing, instead preserved details that Ebn Xordāḏbeh and Qūdama would not have included, given their official roles in the Abbasid administration.[11]

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[11] On Ebn Xordāḏbeh, Qūdama, Ibn Rustah, Abū Dulaf al-Muhalhil see, respectively, HADJ-SADOK 1986, HECK 2002, MAQBUL AHMAD 1986, and MINORSKY 1955, 1–29.

4.2. Pahlavi sources: on names and locations

Pahlavi sources concerned with this area do not preserve much information about distances and itineraries, but Shahrazur is mentioned in the *Kārnāmag ī Ardaxšīr ī Pābagān*, while Dinavar is probably attested in the *Šahrestānīhā ī Ērānšahr*. Although these testimonies are embedded in a rather complex textual framework, overall the references in both works are placed in a fairly coherent context.

The *Kārnāmag ī Ardaxšīr ī Pābagān* can be defined essentially as an epic narrative work focused on entertainment,[12] while the *Šahrestānīhā ī Ērānšahr* has been variously interpreted, most notably as an administrative document of Sasanian origin reworked according to the conventions of later Zoroastrian literary tradition.[13] Cross-referencing with attestations in primary sources, such as monumental inscriptions, seals, and bullae, has helped refine the picture, especially with regard to geographical areas and administrative titles.[14]

The present manuscript transmission of both the *Kārnāmag ī Ardaxšīr ī Pābagān* and the *Šahrestānīhā ī Ērānšahr* seems to ultimately derive from a single source, the codex MK, and later copies do not show substantial differences, apart from scribal errors.[15] Regarding Shahrazur:

> (§ 7.2) *Ardaxšīr pad ān | mēnišn būd kū ō Armēn ud Adūrbādagān | [ša]wam čē Yazdankard ī Syārazūrīg abāg | [was spāh ud gund] az ān kust Syārazūrīg | | mihr[ān] kardag pad framān-burdār‹īh› awiš mad | ēstād* (MK, f. 88r, l. 11 – f. 88v, l. 2).

> (§ 7.2) Ardaxšīr was of this opinion: I will go towards Armēn and Adūrbādagān because Yazdankard of Syārazūr, after having concluded pacts for his submission, has arrived from that district of Syārazūr with a great army.[16]

The passage seems to allude to Ardaxšīr's search for allies, but the syntax is not entirely clear (especially the role of *awiš*), and a textual corruption, or a loss of material in the manuscript transmission, is still possible. The general context refers to a momentary pause in the clash between the Sasanian king Ardaxšīr and the *kirm xwadāy* Haftānbōxt, when Ardaxšīr is starting to look for allies to win the resistance to his power. One of these potential helpers is the otherwise obscure Yazdankard of Syārazūr, hailing from a territory stretching towards *Armēn* and *Adūrbādagān*.[17]

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[12] Чунакова 1987, 24–30; Grenet 2003, 25–29; Cereti 2011.

[13] Messina 1931; Daryaee 2008.

[14] Gyselen 1988; 1989; 2019.

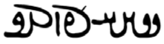
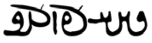
[15] In the transcriptions, a single vertical bar represents the end of the line in the manuscript, a double vertical bar the end of the folio. Words marked with an asterisk are conjectural; missing letters or words due to damage in the manuscript are placed between square brackets, while integrations of scribal errors stand between single guillemets. Paragraph numbering follows the traditional systems employed in the printed editions of the Pahlavi texts (see the following two notes). On MK, see Jamasp-Asana, Anklesaria 1913, 1–8; Hintze 2021; Marchetti 2022a: 1–27; 2022b.

[16] Author's translation. For the printed Pahlavi text of this passage, derived from MK, see Anklesaria 1935: 40. Transcriptions and translations are provided in Nöldeke 1878, 50, Чунакова 1987, 48, 73, and Grenet 2003, 80–83. Other manuscripts available online are: SP (Paris, Bibliothèque nationale, *Supplément persan* 2044, f. 41r, ll. 12–13: https://gallica.bnf.fr/ark:/12148/btv1b10088206b/f47.item), M60 (Munich, Bayerische Staatsbibliothek, f. 13v, ll. 1–2: https://www.digitale-sammlungen.de/de/view/bsb00138414?page=28,29), M74 (Munich, Bayerische Staatsbibliothek, f. 12v, ll. 5–6: https://www.digitale-sammlungen.de/de/view/bsb00138406?page=28,29), and W3 (Edward William West's notebook 3, London, Royal Asiatic Society, p. 23, ll. 16–19: https://west.soas.hasdai.org/records/hgxe4-kmb02).

Both lands are recalled one after the other, but in reverse order, in the trilingual inscription of Šāhpūhr I on the Kaʿbe-ye Zardošt (§ 2), albeit without mention of the land of Syārazūr. [18] However, the epigraphic evidence combined with the information in the *Kārnāmag* seems to imply that the area controlled by Yazdankard, or the region where he came from, should be sought in the northwestern part of the Sasanian territory.

That the attestation of the *Kārnāmag* may be rather old is highlighted by the palaeography of the adjective *Syārazūrīg*, written in MK in a way that still shows the understanding of the correct etymology of the place name as *Syā-razūr* 'Black forest'.[19]

Indeed, the manuscript MK seems to preserve the oldest and closest testimony in Pahlavi literature to the Greek forms Σιάζουρον and Σιαρσούρον.[20] In fact, later codices have, for the most part, various 'rationalised' forms, such as *Šāh-razūr* 'Forest of the king; Royal forest': for example, the recent (mid-19th century) codex SP precisely shows this writing (Tab. 4.1).

MK, f. 22v, l. 10	SP, f. 41r, l. 12
 ‹sd̠ȳʾłcwlyk› *Syārazūrīg*	 ‹š̠hłcwłyk› *Šāhrazūrīg*

Tab. 4.1. Manuscript divergences in the writing (and interpretation) of the term *Syārazūrīg* (Drawing by the author based on actual manuscript attestations).

Sources from the Islamic period provide information on various routes linking *Syārazūr* to *Armēn* and *Adūrbādagān*, so that the literary context of the *Kārnāmag* passage does not exclude territorial precision, at least on a general level.

Regarding Dinavar, instead, the text of the *Šahrestānīhā ī Ērānšahr* is as follows:

> (§ 28) *20*[21] *šahrestān* | *ī andar padišxwārgar kard ēstēd *az* | *Armāyēl enyā az framān ī Armāyēl* | *awēšān kōfdārān kard kē-šān az Až ī* | [*Dahāg*] *kōf pad šahryārīh windād ē-*|[*-stēd*]

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[17] GRENET 2003, 80–83, 91–95.

[18] HUYSE 1999a: 23; 1999b: 21. Specifically on Sasanian *Adūrbādagān*, with previous bibliography, GHODRAT-DIZAJI 2007; 2010; 2011.

[19] This etymology is disputed in WAHBĪ 1961, ١٣٠–١٣١, albeit Arabic sources linking the place to its mythical founder point towards even less acceptable origins of the name.

[20] First attestation in Theophanes (BOOR 1883, 325; MANGO *et al*. 1997, 453), second testimony in the *Chronicon Paschale* (DINDORF 1832, 732; WHITBY, WHITBY 1989, 186).

[21] The peculiar writing of this numeric combination in the Pahlavi script, ‹LY›, has also been erroneously interpreted as twenty-one (DARYAEE 2002, 14, 19; MARCHETTI 2023, 99) or, but in different

> (§ 29) *kōfdār 7 hēnd *[Du]mbāwand | wisemagān *Nehāgān *Wispūtūn ud *Dēnabārān ud *Mu-|-sargān ud *Balūzān ud *Marīnǧān* (MK, f. 22v, ll. 4–11).

> (§ 28) Twenty (are) the settlements that have been founded in Padišxwargār by Armāyēl; moreover, according to the orders of Armāyēl, these chieftains of the mountains were appointed, who had received in sovereignty the mountains from Aždahāg. (§ 29) The mountain chiefs (are) seven: the *wisemagān* of Demāvand, Nehāvand, Bisotun, Dinavar, Masrūq, Balūč, and Marīnǧ.[22]

The passage, although not easy to decipher, bears various denominations that can be traced back to places in western Iran. The name of the region where these toponyms are said to be is Padišxwargār. Similarly to the previous attestation, another epigraphic testimony of this denomination can be found in the Šāhpuhr inscription on the Kaʿbe-ye Zardošt (end of § 2).[23] Here the term written ‹plšhwly› (MP) / ‹pryšhwr› (Pa) / Πϱεσσουαϱ (Gr) is found in a sequential list that includes first Adūrbādagān, Armenia (to the north) and Arbāyestān (to the west), then Mād (to the south) and Gurgān (to the east).

Clues to a further administrative subdivision are provided by comparison with seals, bullae, and ring impressions,[24] and with the text of the Letter of Tansar, a "fugitive piece of Middle Persian literature"[25] only extant in a modern Persian translation deriving from a previous Arabic version.[26] According to these sources, however, the term Padišxwargār seems to denote an area further to the north of Mād/*Ǧibāl*, encompassing the southern Caspian shores and the mountainous countries directly adjacent to them. Consequently, the Padišxwargār of the *Šahrestānīhā ī Ērānšahr* appears to be larger than the administrative region known from primary sources, and to include settlements from neighbouring areas as well. Among these is the site named Dēnabārān.

The graphic form of this word is constant in the manuscripts consulted, namely ‹dynbʾlʾn›. Dēnabārān can be interpreted either as a plural noun (in which case the distinction inherent in the *-ān* suffix of the Pahlavi oblique case seems to have been abandoned), thus referring to the inhabitants of the settlement, or as an adjective of relation linked to *kōfdār* 'chiefs of the mountain/mountains'. In either case the base lemma would be ‹dynbʾl› Dēnabār. The term *kōfdār* in the sense of 'inhabitant of the

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contexts, as thirty (on this topic see, for example, Panaino 2012, 619–620, with references).

[22] Author's translation. The first printed Pahlavi edition of this passage is in Jamasp-Asana 1897, ٢١. Messina 1931, 15, 70–81, provides text, transcription, translation, and a detailed commentary; the paragraphing followed here is in accordance with this edition. A remarkably different interpretation of the geographical names is in Daryaee 2002, 19, 44–45. Other online manuscript sources with the same passage are the codex SP (Paris, Bibliothèque nationale, *Supplément persan* 2044, f. 12v, l. 14 – 13r, l. 3: https://gallica.bnf.fr/ark:/12148/btv1b10088206b/f19.item), and Edward William West's notebook 13 (London, Royal Asiatic Society, p. 23, ll. 1–5: https://west.soas.hasdai.org/records/9sbk0-rnd43).

[23] Huyse 1999a, 22; 1999b, 26–27.

[24] Gyselen 1989, 81; 2019, 172–173.

[25] Boyce 1968, 1.

[26] Boyce 1968, 29–30.

mountains' is known from the Paikuli inscription (§ 20),[27] while the title *wisemagān* is attested in Armenian sources (in particular, Pʾawstos Buzand).[28] If *kōf* is not interpreted in its literal sense of 'mountain' but in the light of the administrative terminology of the Islamic period, an interpretation as *al-Ǧabal/Ǧibāl* would indeed provide an interesting geographical parallel.

Compared to the name of Dinavar attested in Persian and Arabic sources, دينور Dīnavar (P.) / Dīnawar (Ar.), the Pahlavi form has slightly different vocalic and consonantal patterns. The second /a/ sound in Middle Persian is long compared to the short vocalism in the New Persian writing, while in the modern rendering /b/ has shifted first to /w/ and then to /v/. To obtain an etymological connection which may explain a long /a/, and possibly bring the old pronunciation closer to the modern one, a correlation of Dēnabār with the Middle Persian expression *dēn-āwar*, literally 'bearer of religion',[29] can be hypothesised. An alternative option, albeit less plausible, would be *dēn-(a)bar*, deriving the second element from the present stem of the verb *burdān, bar-* 'to carry'. The attested writing ‹dynbʾl› *Dēnabār* could therefore be corrected to ‹dynʾbl› *Dēnābar* or ‹dynʾwl› *Dēnāwar*, which may be considered an antecedent of both the short vocalisation and the spirantization seen in the modern Persian form.

Although the reference to the mountain Dumbāwand (today's Demāvand) seems to point to the range directly south of the Caspian Sea, the other toponyms quoted in the text may be better placed in northwestern Iran. The city of Nehavand, located in the *šahrestān* of Hamadan (‹hmdʾn›) in the Mād region (‹mʾd›), appears in fact also in the previous paragraph (§ 27) in a perfectly phonetic rendering, written ‹nyhʾwnd›. The second attestation in paragraph 29 requires, instead, an emendation from the manuscript form ‹nhʾkʾn›. Also, the word written ‹wsp̄wtwn› can be interpreted, conjecturally, as Wispūtūn and linked to the name Bisotun. In such a situation, this identification would lead again to the same northwestern area of Nehavand and Dinavar.[30] Given the transmission of manuscripts and, in this case, the lack of direct parallels in seals or other epigraphic sources, the proposed corrections to the attested forms ‹dynbʾlʾn› and ‹nhʾkʾn›, and the reading of ‹wsp̄wtwn› as Bisotun, remain at the level of hypotheses, albeit coherent with the geographical frame emerging from the rest of the text.

4.3. The routes to and from Shahrazur

According to various Islamic sources, the main routes into the Shahrazur valley from the south went mostly northeast, first along the basin of the Diyala (Diyālá/Sīrvān),[31] and then in various detours to avoid the steep banks of the river in the northern part of its course. The most important of these itineraries ran east-northeast, following the course of the Hulwan (Ḥulwān/Alvānd) river towards Qasr-e Shirin and Sarpol-e Zohab (Ḥolvān). According to Ibn Wāḍiḥ al-Yaʿqūbī (9th century), the first city on the Khorasan route entirely in the *Ğibāl* territory was Jalula (Ğalūlāʾ),[32] which apparently was also a major branching point in the main road from Ctesiphon/Baghdad to the north.[33] Ibn Ḥawqal (10th century) also recalls that the stop-point immediately preceding Jalula was called Daskara-of-the-King (دسكرة الملك, *daskara al-malik*), in consideration of the custom of the Sasanian kings to reside there in specific periods of the year.[34]

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[27] Skjærvø 1983a, 35; 1983b, 54.

[28] Garsoïan 1989, 160, 162, 568.

[29] The Manichaean term *dīnāwariyya* is apparently unrelated with the name of the city; see already Flügel 1862, 66, 97, 138. Analysis of the sources and further bibliography on this topic in Marchetti 2023, 101.

[30] Markwart's analysis of the text points in this direction; see Messina 1931, 70–71. Daryaee 2002, 44–45, instead, prefers connections with local modern tribal and family names.

[31] "[The Ábi-Shírwán] only retains this title to the point of its junction with the Ḥolwán river, near

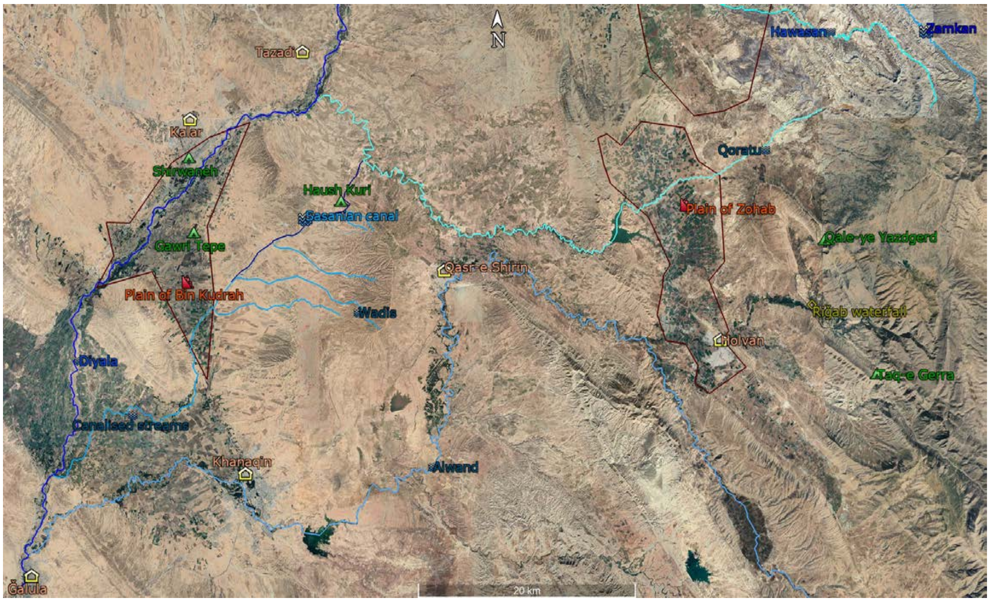

Fig. 4.2. The lower course of the Diyala from Jalula to the confluence with the Qoratu (© 2024 Google Earth, CNES/Airbus and Maxar Technologies; drawing by the author).

A few kilometres north of Jalula, the site now known as Gawr Tepe may also be associated with an ancient settlement, albeit still unnamed, given its large size and height.[35] In addition, the area bounded by the Diyala, Qoratu, and Hulwan rivers also shows signs of an ancient water canalisation, which may have been an original

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Khániḳín. Below that it is called the Diyálah" (Rawlinson 1839, 29).

[32] GOEJE 1892, ٢٧٠, l. 9; GORDON *et al*. 2018, 104.

[33] According to the Persian soldiers quoted by Ṭabarī in his *Tārīkh ar-Rusul wa-'l-Mulūk*, Jalula was literally 'a place that divides' (هذا مكان يفرّق: PRYM 1893, ٢۴٥٧), or "a spot that sends us in different directions" (JUYNBOLL 1989, 37). Albeit the narrative is here hinting that the Persian troops are on the verge of disbanding, the reference to Jalula as a departing point may also imply that various roads branched off from the city towards different directions, as the Persian contingents originated from diverse regions.

[34] KRAMERS 1938, ٢٤٦, l. 20; KRAMERS, WIET 1964, 226, 236–237, 239.

[35] For a brief archaeological survey, see CASANA, GLATZ 2017, 58–60. The *Missione Storico-Archeologica Italiana nel Kurdistan* (MiSAK) is currently investigating the mound: https://misak.it/; https://archeokri.it/missioni/missione-2/.

Sasanian work, given its proximity to the site of Hawsh Kuri (Ḥawš Kūřī), which has ruins dating from this period (Fig. 4.2).[36]

As early as the 19th century, various travellers noted that this region was dotted by mounds, one of which was considered so important that it would have given its name to the river itself. The sources called it "Shirwaneh" or "Shírwanáh" and placed it on the western bank of the Diyala,[37] not far from Gawri Tepe on the other side of the river. If the localisation is correct, this site is near the modern city of Kalar.[38] Various authors also remarked that the best place to cross the Diyala here was the ford of "Bin Kudreh", "Bín-kudrah", or "Binkudreh",[39] in the cultivated plain of the same name. Following the riverbed upstream would not provide a better opportunity for crossing until one reached the site of Bani Khelan (Bānī Ḫilān/Bānī Ḫełān), some 100 km north, which, however, was not open all year round, but only in summer and autumn, when the melted snow had ceased to increase the flow.[40]

Despite these modern references to a crossing in "Binkudrah", there is no mention in the Islamic accounts of a northward itinerary following the course of the Diyala from the west (right) bank up to the ford at Bani Khelan. The existence of direct routes from the west to the Diyala, however, necessarily implies also the presence of communication networks following the river from this side. Similarly, in the same Islamic sources there is no information whatsoever regarding the importance of the Bani Khelan ford and of the routes that traverse the Qaradagh range starting from the Paikuli pass and going north.[41]

The first data on the monument of Paikuli itself came, indeed, in the 19th century, thanks to Sir Henry C. Rawlinson's direct visit in 1844.[42] Rawlinson also made detailed drawings of the text of the surviving Paikuli blocks, recording for the first time the existence of this then-unknown Parthian/Sasanian inscription.[43]

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[36] Rich 1836, 269–272; Jones 1857, 148–149.

[37] Rich 1836, 273; Rawlinson 1839, 29; Edmonds 1957, 162–163. This archaeological site has been linked to the ancient Near Eastern political entity of *Simurrum* see Frayne 1997: 266–267; Frayne 1999, 148; Ahmad 2012, 297–302. Other more northerly places, however, have been proposed; see Frayne 2009–2011, 511 ("a location at modern Šamerān […] fits the additional evidence much better"), and Alibaigi *et al.* 2020: 23, 26 fig. 2, 36 ("the core territory of *Simurrum* was the Shahrizor plain").

[38] Casana, Glatz 2017, 57.

[39] Rich 1836, 273; Rawlinson 1839, 29; Jones 1857, 200; see also Herzfeld 1924, map 2, at coordinates 15° N, 30° W.

[40] "When I was there, at the end of May, the river had a breadth of about 120 yards, and the ford was not practicable: during the summer and autumn, however, it can be crossed without much difficulty" (Rawlinson 1839, 29). Edmonds 1957, 158, noted the "ruined piers of an ancient bridge" in the vicinity of the town.

[41] In Rawlinson's words: "[...] I have never met with a notice of the locality among the many copious descriptions of Sassanian antiquities that are found in the early Arabic Historians and Travellers" (Thomas 1867, 298; 1868, 58). Archaeological remains, however, were present and duly reported in Rawlinson's notes, for example on the ruined city of "Shar-i-Verán" (Thomas 1867, 299; 1868, 59). On the Sasanian hydraulic works and siphons near modern Kalar, see Casana, Glatz 2017, 61–62.

[42] James B. Fraser already wrote of "a *Bootkhaneh*" in a letter dated 1st November 1834, but did not refer specifically to the name Paikuli (Fraser 1834, 158–159). Rawlinson was informed of the existence of the monument during his stay in Kurdistan in 1835–1836, but managed to visit it only in 1844, when he wrote extensively on the building and its inscribed blocks, as reported in Thomas 1867, 296–300; 1868: 56–60. This account is a revised publication of part of the final pages of Rawlinson's notebook now in the library of the Royal Asiatic Society in London, shelf mark RAS IV/07(04), entitled *Notes taken on my trip from Baghdad to Hamadan and back by Sulimaneh*, where "Paee Koolee" is mentioned together with a sketch of one of Narseh's busts (indexed online at: https://royalasiaticsociety.org/list

A much different situation, instead, concerns the east (left) bank of the Diyala and the routes that passed through the regions between the river and the Zagros, including the first stages of the Khorasan highway (Fig. 4.3).[44]

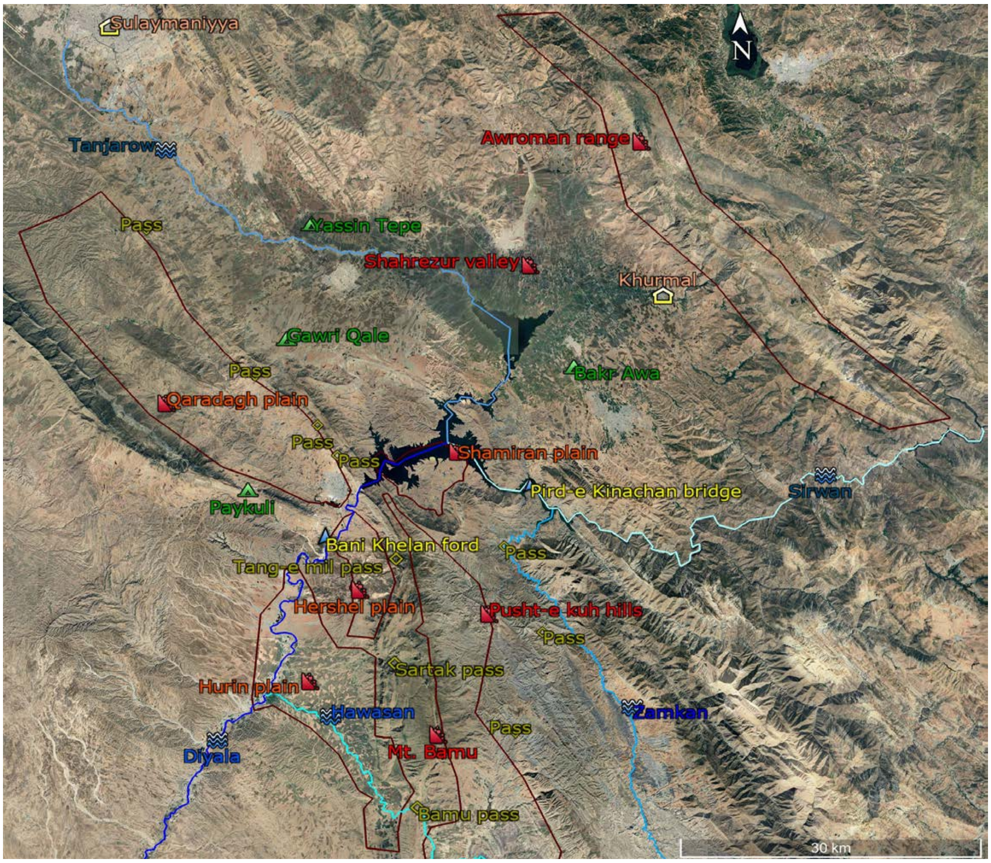

Fig. 4.3. The upper course of the Diyala from the confluence with the Hawāsān up to the Shahrazur valley. Archaeological sites in green, settlements in orange, geographical features in red (plains), yellow (fords and bridges), and brown (mountain passes), rivers in blue (© 2024 Google Earth, CNES/Airbus and Maxar Technologies; drawing by the author).

-of-the-ras-collections-of-sir-henry-creswicke-rawlinson-bart-1810-1895/). See also the brief mention of the "каменныхъ грудь" ("stone piles") at "Па-и-кули" ("Pa-i-kuli") in ГАМАЗОВЪ 1875, 369–370.

[43] Notes preserved in a small concertina-folded notebook dated 1844 now in the Royal Geographical Society archives (shelfmark HCR/9, indexed online at https://discovery.nationalarchives.gov.uk/details/r/d987c2d2-67ff-4c7d-85ff-747de5506ed6). The same drawings were used by Edward Thomas for his first attempt at translating the inscription; see THOMAS 1867, 278–296 (p. 278: "Sir Henry Rawlinson has most disinterestedly entrusted me with his own private note-books containing his original sketches of the Páï Kúlí Inscriptions"), reprinted in THOMAS 1868, 38–56.

[44] As Rawlinson's notes to Thomas recall: "[…] in following the Páï-Kúlí route from Sulimanieh to Khannikín, I now found a series of ancient remains which convinced me that the old road conducting from Ctesiphon to the Atropatenian Ecbatana must have followed this line" (THOMAS 1867, 299; 1868, 59).

Although the sources do not precisely locate many sites, which are mentioned only by name and often not by their position, the regions east and west of the Kūh-e Bamo range seem to have been crossed by several important routes going from Jalula /Ḥāniqīn/Qasr-e Shirin/ Sarpol-e Zohab (Ḥolvān) to the Shahrazur valley. Among the still unidentified place names recalled by Islamic authors there are Māḏruwāsbān, Sawāmerdān, Bendenīǧān, Salāšān, and Dīzkurān/Dīrakān, most of them recorded with variants in script and spelling.[45] It is not always possible to reconcile these testimonies with known archaeological sites, and in most cases only a general area can be estimated for them,[46] although the very presence of rock reliefs, watchtowers, and other remains indicates the importance of the region in ancient and modern times.[47]

For al-Yaʿqūbī, from the time of the foundation of the Sasanian Empire the district of Shahrazur belonged to the administrative province of *Ǧibāl* and the military region of Āḏarbayǧān.[48]

In parallel, Balāḏurī (9th century) records that Shahrazur, along with Ṣāmeġān and Dārābāḏ, was part of the territory of Mosul from the Arab conquest until the time of the caliph Hārūn ar-Rašīd.[49] However, Ṣāmeġān and Dārābāḏ may also be the names of local districts rather than those of towns or cities.

Therefore, from at least the middle of the 7th century (and until the beginning of the 9th century) local administrative relations would have been different from those of the Sasanian period. There is also conflicting information about the routes to and from the homonymous district capital of Shahrazur, and its location is still debated.[50]

Two itineraries seem to have been the most important passages to the north, one starting just outside Qasr-e Shirin and the other from Sarpol-e Zohab.

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[45] On these places, see the data in Schwarz 1926, 689, 693; 1929, 915. According to Rawlinson's notes, Dīzkurān/Dīrekān might have been the old name of Hawsh Kuri, and Yasin Tepe was the site of the old city of Shahrazur, see Thomas 1867, 299; 1868, 59, but see notes 50 and 53 below.

[46] For example, Rawlinson 1839: 31, describes with admiration the imposing ruins he found in the Ḥūrīn/Horen valley, near the Sartak pass, but the names he provided, "Shahri-Fadak" and "Ḳal'ahi Gabr", are not in accordance with those registered in earlier Islamic accounts, and today are either not used at all or employed to describe different sites. For example, Ḳal'ahi Gabr cannot be the present-day Gawrī Qała/Qale-ye Gawrī (which is Rawlinson's "Goura Kileh" in Thomas 1867, 299; 1868: 59), because it lies to the north of the Baranan mountain range; see Altaweel *at al*. 2012, 9, fig. 4. Note also that, according to Edmonds 1925, 64, "Kurds and Lurs describe anything pre-Muhammadan as Gawr". For the unidentified ruins of "Shahri-Fadak", see also Chirikov's itinerary published in Гамазовъ 1875, 363–364 ("Шехр-и-Федекъ"), and the comparison with other sites in Гамазовъ 1875, 431, 439 ("Федекѣ").

[47] For the earliest archaeological attestations in the area, see Edmonds 1966, 159–160; Postgate 1984 (especially 154, n. 12 for the accessibility of the route); Alibaigi 2019; Alibaigi *et al*. 2020.

[48] Accounts in his *Tārīḫ*, cf. Houtsma 1883, ٢٠١; Gordon *et al*. 2018, 477.

[49] Goeje 1866, ٣٣۴; Kennedy 2022, 337.

[50] Safar 1974, 196–197, based on distances and typological features, rejects Rawlinson's equation of Yasin Tepe with Shahrazur, quoting previous literature endorsing Khurmal/Ḫurmāl. Indeed, Herzfeld 1924, 8, 232, simply states the identification of Shahrazur with "Gulʿambar" (*i.e.* Khurmal), possibly because in Ottoman times the administrative centre of the Shahrazur was effectively located in Khurmal, at least until the 17th century; see Birken 1976, 206–208. It is worth noting, however, that Chirikov did not identify Shahrazur with Khurmal, as Safar suggests; see Гамазовъ 1875, 440–441, and below for more details.

The road from Qasr-e Shirin to Shahrazur is briefly described by Ebn Xordāḏbeh (9th–10th century), who mentions only one stage on the route:

> Whoever wishes to go to Šahrazūr should go by 2 *farāsiḫ* from Qaṣr-e Šīrīn to Dīzkurān and (from there by) 18 *farāsiḫ* to Šahrazūr. The capital of Šahrazūr is called Nīm-azrāh, (*i.e.*) 'halfway' between al-Madāʾin and the Fire Temple of Šīz.[51]

Ibn Rustah has for the name Dīzkurān the variant Dīrakān, but that the place must be the same is confirmed by the description of the itinerary.[52] Though little known, this site seems to have been the first junction point of the Shahrazur route with the Khorasan highway coming from Qasr-e Shirin, but, as noted above, its exact location has not been determined yet.[53] The distance between Qasr-e Shirin and the Shahrazur area is about 100 km,[54] which can be equated to the 20 *farāsiḫ* given by Ebn Xordāḏbeh. Thanks to comparisons with other itineraries, it can also be assumed that in a favourable terrain and season 5 *farāsiḫ* may be equivalent to the daily distance covered by a caravan, while 10 *farāsiḫ* may be equalled to a daily horse march. Dīzkurān, therefore, may plausibly be the first stage between the two centres in a march of two days, starting from Qasr-e Shirin. In its general layout, this route crossed four plains, the Ẕohāb, the Ḥūrīn/Horen, the Žāłanāw/Sarāw/Sołāwa,[55] and the Šamerān, respectively bounded by the course of the Qoratu, the Hawasan, and the Sirvan rivers. Ibn Rustah mentions a fortified bridge over the Sirvan on this path,[56] which seems best placed in the area due east of the Šamerān plain, therefore signalling that the way is here heading towards the eastern part of the Shahrazur valley. Indeed, until recent times this district preserved traces of at least three bridges, the westernmost of which, called Pird-i Kinachan and now submerged,[57] may be the one alluded to by Ibn Rustah. According to this information, therefore, it seems that this route did not lead to the Bani Khelan ford, but went east, possibly through the Tang-e mīl pass, and joined the more easterly path coming from Sarpol-e Zohab, crossing the mountainous fortified defensive line today known as the Gawrī Dīwār.[58]

For the Sarpol-e Zohab (Ḥolvān)–Shahrazur route, several sources give distances and travel times according to different systems of measurement. For Ebn Xordāḏbeh and Qudāma (9th–10th century) the journey consists of 9 *sikak*.[59] For Iṣṭaḫrī (10th century)[60] and Ibn Ḥawqal[61] the same tract is covered in 4 *marāḥil*, while for al-Muhallabī (10th century, but only preserved in ʿAbū ʾl-Fidāʾ, 14th century)[62] the distance is 22 *farāsiḫ*. Unfortunately, we have no locations for the stations named by Abū Dulaf al-Muhalhil on this itinerary, such as Bīr, Duzdān, Daylamestān, Tīrānšāh and Qin(n)ā.[63] Some attempts to identify these sites have been made over the years by modern authors, who have based their hypotheses on the physical description of the places in Islamic sources.

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[51] Goeje 1889, 15, ١٩. This is approximately the same route followed by Chirikov in 1851 (21 November–22 December) and 1852 (14 April–6 June); see Гамазовъ 1875, 356–372, 424–448.

[52] Goeje 1892, 15, ١٦۴.

[53] Rawlinson's identification with Hawsh Kuri is unlikely, given the description of the road (in Thomas 1867, 299; 1868, 59); more probable seems the one given in Jones 1857, 149, with a mound called "Jellaleh".

[54] Rawlinson 1839, 32: "The distance from Semírám to Zoháb by this route, through Hershel, Ḥúrín, and Sheïkhán, is about 60 miles". For the location of the plains quoted by Rawlinson, see below.

[55] Called "Hershel" in Rawlinson 1839, 30–32.

[56] Goeje 1892, ١٦۴.

[57] Chirikov's memoirs are the first modern account on this bridge, see Гамазовъ 1875, 438. For the name of the structure, see Safar 1974.

[58] Alibaigi 2019.

The account of General Egor I. Chirikov, travelling in Kurdistan in the years 1849–1852 for the establishment of the Ottoman–Persian border, identifies "Гуль-амбаръ или Кюлемберъ", *i.e.* Gulʿambar/Ḫurmāl, with "Сіахуръ-и-Дизданъ", *i.e.* probably Duzdān, not Shahrazur.[64] More recently, Fuad Safar associated the mound of Bakr Awā with the site of Duzdān, the hamlet of Ǧunda with Qin(n)ā, and the town of Biyāra with Bīr, while Daylamestān, according to him, would have been located near Yasin Tepe. Tīrānšāh, however, is left without a plausible location due to the lack of evidence in the sources.[65] Ḥamza al-Iṣfahānī (10th century) records the existence of a Sasanian city of great importance between Sarpol-e Zohab (Ḥolvān) and Shahrazur, which he calls Irān-šād-kawāḏ.[66] At present, it is not easy to locate such a settlement or propose a correspondence with named ruins in modern travel accounts. It is plausible, however, at least judging from epigraphic evidence in seals, bullae, and engraved ring beads, that the Sasanian city of Ērān-šād-kawāḏ might also have been the capital of a district named Ērān-āsān-kar-kawād in pre-Islamic times.[67]

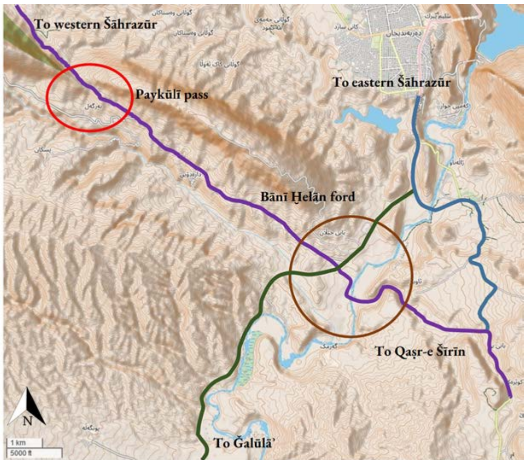

Fig. 4.4. The ford at Bani Khelan and the route leading to the Paikuli pass, never mentioned in Islamic accounts (© 2024 OpenStreetMap; drawing by the author).

According to the Muslim geographers, therefore, only two routes led from the south to Shahrazur, and neither of them followed the Diyala or forded the river at "Binkudrah" or Bani Khelan, or went up via the Paikuli pass. This latter itinerary could only be determined by land surveys and thanks to the numerous archaeological sites that dot the landscape along the west bank of the Diyala and the Qaradagh range (Fig. 4.4).[68]

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[59] Goeje 1889, 30, 171, ۴۱, ۲۲٦.

[60] Goeje 1870, ۱۹۷.

[61] Kramers 1939, ۳٦۱; Kramers, Wiet 1964, 353.

[62] Reinaud, Mac Guckin de Slane 1840, ۴۱۳; Guyard 1883, 162.

[63] Minorsky 1955, 40–42; see also see Schwarz 1926, 703–704.

[64] Гамазовъ 1875, 440–441.

[65] Safar 1974, 197–198. According to Chirikov, Ǧunda is the nearest village to the bridge that Safar calls the Pird-i Kinachan: Гамазовъ 1875, 438.

[66] Gottwaldt 1844, ٥٦; 1848, 41–42; Hoyland 2018, 70. In Schwarz 1926, 704, n. 9, this place name is tentatively associated with the site called "Shahri-Fadak" in Rawlinson 1839, 31, even if the German scholar also noted that Rawlinson's description of the ruins seemed to point to a pre-Sasanian era.

[67] Gyselen 1989, 45–46; 2019, 68–69. See also Salih and Terribili in this volume.

Instead, the two major communication networks known from Islamic sources originated from either Qasr-e Shirin or Sarpol-e Zohab (Ḥolvān), and wounded either west, along the Žāłanāw/Sarāw/Sołāwa and Ḥūrīn/Horen plains, or possibly further east, across the hilly flanks of the Pošt-e kūh, the Bamo range and the Gawrī Diwār.[69] Both headed towards the eastern part of the Shahrazur plain and the capital of the same name, which, however, still eludes identification (Fig. 4.5).

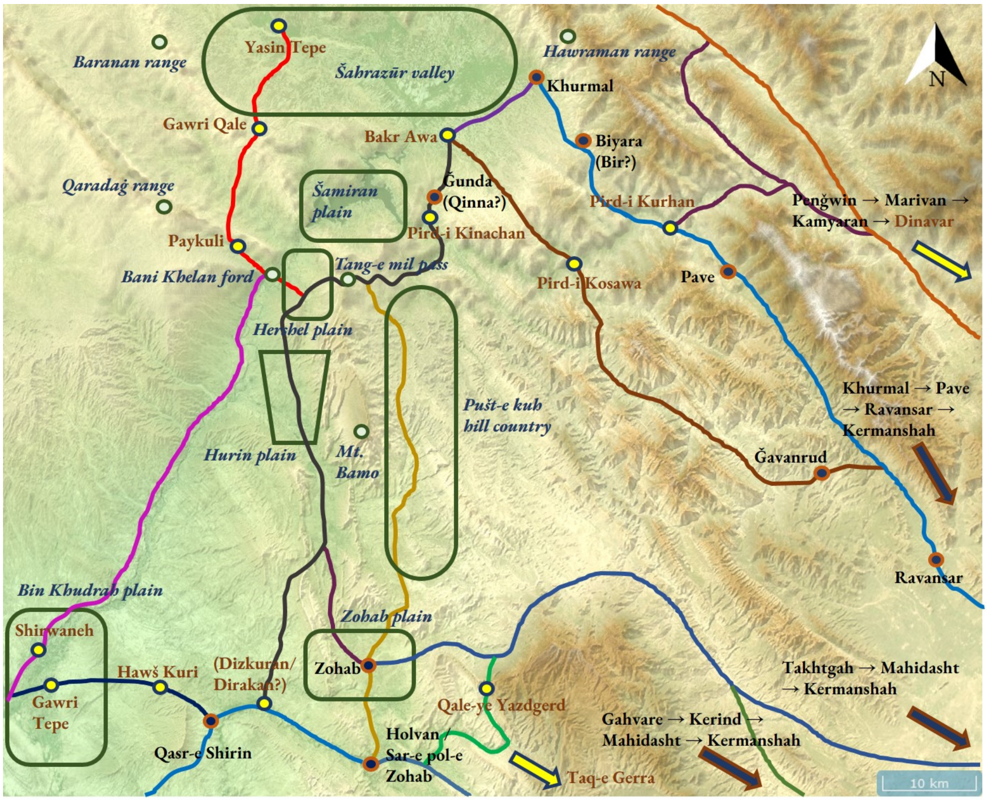
Yasin Tepe
Baranan range
Šahrazūr valley
Hawraman range
N
Khurmal
Gawri Qale
Bakr Awa
Biyara
(Bir?)
Qaradağ range
Šamiran plain
Ğunda
(Qinna?)
Pird-i Kurhan
Penğwin → Marivan →
Kamyaran → Dinavar
Paykuli
Pird-i Kinachan
Bani Khelan ford
Tang-e mil pass
Pird-i Kosawa
Pave
Hershel plain
Khurmal → Pave
→ Ravansar →
Kermanshah
Pušt-e kuh
hill country
Hurin plain
Mt.
Bamo
Ğavanrud
Ravansar
Bin Khudrah plain
Shirwaneh
Zohab plain
Hawš Kuri
(Dizkuran/
Dirakah?)
Zohab
Takhtgah → Mahidasht
→ Kermanshah
Gawri
Tepe
Qale-ye Yazdgerd
Gahvare → Kerind →
Mahidasht → Kermanshah
Qasr-e Shirin
Holvan/
Sar-e pol-e
Zohab
Taq-e Gerra
10 km

Fig. 4.5. The two routes from the south towards the Shahrazur plain described by Islamic accounts (marked in grey and gold colours) inside the broader context of transportation networks across the central-western Zagros. Archaeological sites in blue and yellow, modern towns in orange and blue (© 2024 OpenStreetMap; drawing by the author).

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[68] Of particular interest is the route followed by Cecil J. Edmonds in 1922 from Halabja to Kalar, which passed through the very difficult Darbandikhan gorge descending to Kalar, and crossed the Paikuli pass on the way back; EDMONDS 1957, 156–168.

[69] RAWLINSON 1839, 30–31, calls the plains west of the Bamo range "Hershel" and "Hurin", and the eastern area "a hilly and richly-wooded valley named Pushti-kúh". See also Chirikov's corresponding description in ГАМАЗОВЪ 1875, 430. The Bamo chain is considered an eastern propagation of the Baranan, *i.e.* the mountain range north of the Qaradagh, which, albeit cut deep by the Diyala/Sirvan, is still geographically contiguous to its western part; cf. EDMONDS 1928, 162.

The Shahrazur plain could also be reached descending from the north, and there are reports giving routes and distances linking this region with the Āḏarbayǧān territory of Islamic times.

According to al-Muhallabī (in ʿAbū ʾl-Fidāʾ),[70] the district of Shahrazur would border on that of Marāġa. This information is already implicitly present in al-Muqaddasī's report (10th century), which, while not giving indications on administrative frontiers, presents the following north-south stations:

- Marāġa → Qunduriyya: 2 *marāḥil;*
- Qunduriyya → an unspecified village (*qarya*): 3 *marāḥil;*
- Unspecified village (*qarya*) → Qalʿa al-Ḥasan ibn ʿAlī: 1 *marḥala;*
- Qalʿa al-Ḥasan ibn ʿAlī → Shahrazur: 30 *farāsiḫ*.[71]

There are no records of other itineraries to or from the north, in particular to Takht-e Soleyman, which unsurprisingly suggests that the Sasanian fire temple at Šīz was no longer of particular importance in Islamic times. The district of Šīz, on the other hand, is listed by Ibn Wāḍiḥ al-Yaʿqūbī among those belonging to Āḏarbayǧān, but without any specific description.[72] A late account by Yāqūt (13th century) simply states that Šīz would be "between Marāġa, Zanǧān, Šahrazūr and Dīnawar".[73]

Although, as noted above, Islamic sources do not provide data on how to reach Shahrazur from the west, they do provide at least some information on the routes from the east. An itinerary from Dinavar to Shahrazur is mentioned by Iṣṭaḫrī as follows:

> من الدينور الى شَهرَزُر ۴ مراحل
>
> From Dīnawar to Šahrazūr [there are] 4 *marāḥil*.[74]

The indication is essential: the route takes four days of travel to cover, and no distances, stopping points, or place names are given. The feeling one gets from such a scant reference is that the itinerary was not particularly frequented, perhaps due to the difficulty of crossing the passes of the Hawrāmān/Avrāmān range. As a possible confirmation, Ibn Ḥawqal reports that:

> من المراغة الى الدينور ستّون فرسخًا لا منبر فيها
>
> From Marāġa to Dīnawar [there are] 60 *farsaḫan* (*sic*) without a [village with a mosque provided with a] *minbar* there.[75]

---

[70] Reinaud, Mac Guckin de Slane 1840, ۴١٣; Guyard 1883, 162.

[71] Goeje 1906, ٣٨٢; Collins 1994, 337.

[72] Goeje 1892, ٢٧١; Gordon *et al*. 2018, 106.

[73] Barbier de Meynard 1861, 367; Wüstenfeld 1868, ٣٥۴.

[74] Goeje 1870, ١٩٧, ll. 8–9.

[75] Kramers 1939, ٣٥٣–٣٥۴; Kramers, Wiet 1964, 346.

This account stresses the impression that the area in question had only dispersed settlements. It must also be noted that although the itinerary from Marāġa to Dinavar does not necessarily pass through the Shahrazur valley, the mountainous region crossed coincides, at least in part.

In addition to geographical or historical references, there are also some remarks in literary sources referring to the importance of Shahrazur, be it the region or its main site. Indeed, in the *Šāhnāme* Ferdowsī has Roxane utter the following lament over Alexander's body:

جهاندار دارای دارا کجاست　　کزو داشت گیتی همی پشت راست
همان خسرو اشک و فریان و فور　　همان نامورخسرو شهرزور؟

The conqueror Dārā son of Dārā where is he,
Who kept the world in order?
And the ruler Ašk, and Faryān, and Fūr,
And that renowned sovereign of Šahrezūr?[76]

4.4. The Khorasan road and the communication networks around Dinavar

The other major trunk of the roads that started from Qasr-e Shirin is the Zagros section of the so-called Khorasan highway, part of a broader system of interconnections that have been dubbed *Seidenstrassen* 'Silk Roads' in the 19th century.[77]

Various authors describe the canonical route east from Qasr-e Shirin, with several variants. One of the most complete is preserved in Arabic by Ebn Xordāḏbeh (10th century), who recalls these first stages:

- Qaṣr-e Šīrīn → Ḥulwān: 5 *farāsiḫ;*
- Ḥulwān → Māḏarawāstān: 4 *farāsiḫ;*
- Māḏarawāstān → Marǧ al-qalʿa: 6 *farāsiḫ;*
- Marǧ al-qalʿa → Ḫuškārīš: 3 *farāsiḫ;*
- Ḫuškārīš → Qaṣr ʿAmr: 4 *farāsiḫ;*
- Qaṣr ʿAmr → Qarmīsīn: 3 *farāsiḫ;*
- Qarmīsīn → Dukkān: 9 *farāsiḫ.*[78]

---

[76] Text in KHALEGHI-MOTLAGH, OMIDSALAR 2005, ۱۲۷ (verses ۱۸۸۷–۱۸۸۸), and in OСМАНОВ, НУШИН 1968, ۱۱۰ (verses 1885–1886). Author's translation.

[77] The first use of the term as a concept in a coherent framework concerned with communication networks is in RICHTHOFEN 1877, 496; for a discussion on its origin and employ in authors preceding Ferdinand von Richthofen, and especially Carl Ritter, see WAUGH 2007 and MERTENS 2019.

[78] GOEJE 1889, 14–15, ۱۸–۱۹.

From Dukkān it is possible to turn south-east and go to Māḏarān and then Nehavand (Nehāwand), or to stay on the main road and continue to Hamadan (Hamaḏān). In the latter case, the next stages are four:

- Dukkān → Qaṣr al-luṣūṣ: 7 *farāsiḫ;*
- Qaṣr al-luṣūṣ → Ḫunḏād: 7 *farāsiḫ;*
- Ḫunḏād → Qarya al-ʿasal → 3 *farāsiḫ;*
- Qarya al-ʿasal → Hamaḏān: 5 *farāsiḫ.*

The cumulative distance of the stages recalled by Ebn Xordāḏbeh from Qasr-e Shirin to Hamadan amounts to 56 *farāsiḫ.*[79]

Two mountain passes must be crossed along the way, the first between Ḥulwān and Māḏarawāstān (marked by the Ṭāq-e Gerra) and the second between Ḫunḏād and Qarya al-ʿasal, otherwise the route follows mainly flat or hilly terrain and river basins. There are five stages from Qasr-e Shirin to Kermanshah (Kermānšāh/Qarmīsīn) and another four from Kermanshah to Hamadan.

Other authors report slight variations in stage names and distances, keeping, however, the same starting and final points. For example, Qudāma (10th century) provides the following route variations between Qasr-e Shirin and Kermanshah:

- Marǧ al-qalʿa → Qaṣr Yazīd: 3 *farāsiḫ;*
- Qaṣr Yazīd → Zubaydiyya: 6 *farāsiḫ;*
- Zubaydiyya → Ḫuškārīš: 3 *farāsiḫ.*

Between Kermanshah and Hamadan, instead, the itinerary seems to follow an altogether different path, or at least to touch places with alternative names, as the two descriptions do not coincide:

- Qarmīsīn → Qanṭara Maryam: 5 *farāsiḫ;*
- Qanṭara Maryam → *Musaḥana: 4 *farāsiḫ;*
- *Musaḥana → Qaṣr al-luṣūṣ: 6 *farāsiḫ;*
- Qaṣr al-luṣūṣ → Asadābāḏ: 7 *farāsiḫ;*
- Asadābāḏ → Zaʿfarāniyya: 6 *farāsiḫ;*
- Zaʿfarāniyya → Hamaḏān: 3 *farāsiḫ.*

In this case, the distance in Qudāma's account amounts to 65 *farāsiḫ,* which is slightly longer than Ebn Xordāḏbeh's total. The discrepancy, therefore, plausibly indicates that the two authors most probably described two different roads, using different pathways rather than measuring differently the same itinerary, even if origin and destination were the same (Tab. 4.2). The settlement which seems to have functioned as the 'deviation point' is Qarmīsīn (Kermanshah).[80]

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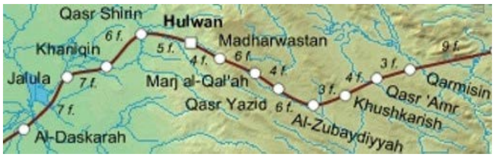
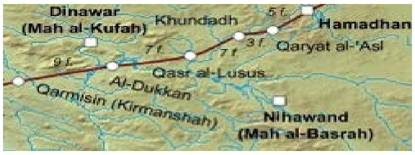
[79] Goeje 1889, 17, ٢١.

<table>
<tr><th>Qudāma's itinerary from Daskara-of-the-King to Kermanshah</th><th>Ebn Xordāḏbeh's itinerary from Kermanshah to Hamadan</th></tr>
<tr><td>

Qasr Shirin
Hulwan
6 f.
Khaniqin
5 f.
Madharwastan
4 f.
6 f.
Jalula
7 f.
4 f.
Marj al-Qal'ah
3 f.
9 f.
4 f.
3 f.
Qarmisin
7 f.
Qasr Yazid
6 f.
Qasr 'Amr
Khushkarish
Al-Zubaydiyyah
Al-Daskarah
</td><td>

Dinawar
(Mah al-Kufah)
Khundadh
5 f.
Hamadhan
7 f.
7 f.
3 f.
Qaryat al-'Asl
9 f.
Qasr al-Lusus
Al-Dukkan
Qarmisin (Kirmanshah)
Nihawand
(Mah al-Basrah)
</td></tr>
</table>

Tab. 4.2. Comparison of stages and place names in Qudāma's and Ebn Xordāḏbeh's itineraries (© OpenStreetMap 2024; modified by the author).

Some discrepancies can be reconciled by comparison with later accounts (cf. Qazvīnī's related passages), [81] however other reports still preserve hints of diversions and detours, or different explanations for place names. In this regard, also for the 10th century, Ibn Rustah:[82]

- uses the form Māī Darawāstān for Māḏarawāstān;[83]
- says that the village at the foot of the Ḥulwān pass leading to Māī Darawāstān is known simply as Sarāb ('water spring'), and the one at the base of the pass on the Māī Darawāstān side is called Āẖurīn, where there used to be a fire temple;
- places a bridge after Qarmīsīn, which may be connected to the site of Qanṭara Maryam in Qudāma, and a village named Ḫiyāwīn nearby;
- signals the settlement of Abū Ayyūb before Dukkān, overlooking the mountain of Bahistūn (Bisotun);
- recalls that from Dukkān it is possible to reach both Māḏarān and Nehavand, but also Māsabaḏān, Mihriǧānqaḏaq, Dinavar, Hamadan and Qumm, and that the preferred route to Qaṣr al-luṣūṣ actually descends to Māḏarān and passes through Nuʿmāniyya and its bridge;
- states that Asadābāḏ is the village whose stopping place (caravanserai?) is known as Ḫunḏād;
- reports that Qarya al-ʿasal is also called Dah ankabīn (that is, an Arabic rendering of the actual Persian name Deh angebīn 'honey village').

In these accounts, it is often impossible to ascertain with precision if some of the place names given can be referred to simple stop points or caravanserais; archaeological surveys revealed remains of at least eight structures of this kind between Qasr-e Shirin and Kangavar.[84] The presence of the two stages of Qaṣr Yazīd and Zubaydiyya between Marǧ al-qalʿa and Ḫuškārīš in Qūdama, as opposed to the more direct section of Ebn Xordāḏbeh, both 10th-century accounts, may indicate different transit options, and not merely the existence of intermediate stages in the same route.

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[80] GOEJE 1889, 154, ١٩٨. It is remarkable that, although Ḫunḏād is not mentioned in Qudāma's main itinerary, this place is later acknowledged in the same text as the last station in the district of Dinavar; GOEJE 1889, 171, ٢٢٦.

[81] LE STRANGE 1915, ١٦٥; 1919, 161–162.

[82] GOEJE 1892, ١٦٦–١٦٧.

[83] In Abū Dulaf al-Muhalhil it is also written Māḏarūstān; see MINORSKY 1955, 43.

Indeed, the itineraries of Ibn Rustah and Abū Dulaf al-Muhalhil, also from the 10th century, allow us to note that the same elements of the territory are not equally important for all authors. Ebn Xordāḏbeh only mentions the larger centres, skipping river crossings and villages near bridges. Qūdama, on the other hand, mentions bridges, but not villages at the base of mountain passes; these are reported by Ibn Rustah, instead. Abū Dulaf al-Muhalhil reconciles a number of different passages by pointing out that the places may have a name that depends on the most important element of the settlement itself (e.g. for him Dukkān, 'shop', is the same place as the Abū Ayyūb of Ibn Rustah).[85] These discrepancies are typical not only in Islamic accounts, however, and may depend mostly on the general interests of writers, as is evident in modern reports. In the early 20th century, for example Lieutenant Colonel George S. F. Napier dryly recalled that:

> "The mighty Zagros range, forming a buttress between Mesopotamia and Kirmanshah, is crossed at the gap called Tak-i-Girra between Khanikin and Karind: a formidable climb from the Mesopotamian plain to the Persian plateau, but an easy descent when travelling from east to west."[86]

By comparison, Jones and Rawlinson's account of the same section of the road sixty years before takes up a good twenty pages.[87]

The sources do not provide many details about the connection between this area of the Zagros and the Shahrazur valley, except for some data about the roads passing through the district of Dinavar and the city of the same name.

Ibn Wāḍiḥ al-Yaʿqūbī gives the route between Kermanshah and Dinavar, without specifying any intermediate stops, but only the duration of the journey:

من مدينة قرماسين الى الدينور ثلث مراحل

> From the city of Qarmāsīn to Dīnawar [it is a] three days' march.[88]

Additionally, Ebn Xordāḏbeh has some information on the name of one stage in the route:

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[84] Most of them only partially preserved; see KLEISS 1996, 16–17, 74–91.

[85] For him the place is located at the confluence of the river Dinavar with the Gāmās-āb; see MINORSKY 1955, 49.

[86] NAPIER 1919, 1.

[87] JONES 1857, 138–157.

[88] GOEJE 1892, ٢٧٠, l. 22; GORDON *et al*. 2018, 104.

تعدل من طريق خراسان من سِنِّ سُمَيْرة، فمن سنّ سميرة الى الدينَوَر خمسة فراسخ (سكّتان)

> One leaves the way of Ḫurāsān at Sinn Sumayra, then from Sinn Sumayra to Dīnawar [there are] 5 *farāsiḫ* (2 *sikak*).[89]

Ebn Xordāḏbeh's indication of the branching off of the road at Sinn Sumayra to go to Dinavar is interesting, because for this area he does not indicate the name of a village or of a stopping place as a junction (as Dukkān/Abū Ayyūb), but that of an element of the landscape, *i.e.* the mountains around the ridge of Bisotun.[90]

Other sources give slightly more details. Iṣṭaḫrī provides the general route from the east with the following stops:

- Māḏarān → Ṣuḥna: 4 *farāsiḫ;*
- Ṣuḥna → Dīnawar: 4 *farāsiḫ*.[91]

Ibn Ḥawqal adds the intermediate distances of each stage starting from Hamadan in the northeast and going southwest:

- Hamaḏān → Māḏarān: 4 *farāsiḫ;*
- Māḏarān → Rāwuḏār: 4 *farāsiḫ;*
- Rāwuḏār → Asadābāḏ: 9 *farāsiḫ;*
- Asadābāḏ → Ṣuḥna: 9 *farāsiḫ;*
- Ṣuḥna → Dīnawar: 8 *farāsiḫ*.[92]

In contrast, Ibn Wāḍiḥ al-Yaʿqūbī gives the reverse route from Dinavar to Hamadan, mentioning only one station, and with a different name than those in the other accounts:

- Dīnawar → Muḥammadābāḏ: 2 *marāḥil;*
- Muḥammadābāḏ → Hamaḏān: 2 *marāḥil*.[93]

Al-Masʿūdī (10th century), speaking of the looting of *Ğibāl* by Mardāwīğ's troops, simply recalls that Dinavar is three (solar) days (أيّام) away from Hamadan.[94]

The Arabic sources, therefore, do not seem to allow us to locate the site of Dinavar with complete accuracy. Ibn Ḥawqal's itinerary is the most precise, but locations for the names of the way stations cannot be identified with certainty (and the distances retain their degree of 'elasticity' when compared across all accounts). However, the data from medieval accounts are of great help when they can be compared with more recent evidence, in the case of Dinavar two in particular. At the end of the 19th century, Jacques de Morgan reported:

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[89] Goeje 1889, 91, ١١٩.

[90] The specific identification of Sinn Sumayra is debated, but the area is well described by Balāḏurī: see Goeje 1866, ٣٠٧–٣٠٨; Kennedy 2022, 311.

[91] Goeje 1870, ١٩٦.

[92] Kramers 1929, ٣٥٩; Kramers, Wiet 1964, 351.

[93] Goeje 1892, ٢٧٢; Gordon *et al*. 2018, 106.

[94] Barbier de Meynard 1877, 24.

> ″[…] je décrirai dans ce chapitre les principaux monuments du Kurdistân de Kirmanchahân, les passant en revue suivant l'ordre dans lequel je les ai visités, c'est-à-dire en marchant d'est en ouest.
>
> À quelques farsaks de Keñghâver, au milieu des montagnes kurdes, est une large vallée, celle de Dinâver, où jadis s'élevait une ville de ce nom, mais où aujourd'hui ne sont plus que des villages sans importance.
>
> D'après Yakout (Mo'djem el-bouldan), son étendue était du tiers environ de Hamadân ; elle était entourée de beaux vergers et de riches cultures, située dans un pays très pittoresque et bien fournie d'eaux vives. Elle avait vu naitre plusieurs savants en renom dans les pays musulmans, parmi lesquels ʿAbd Allah ben Mohammed ben Wehb el-Hâfez, avait un bazar bien achalandé et était d'une résidence agréable.
>
> Aujourd'hui, Dinâver ou Dinewer (دِينَور) a complètement disparu ; son nom n'est plus appliqué qu'à un petit district peuplé de Kurdes demi-sauvages ; les jardins n'existent plus ; les cultures sont abandonnées. Il ne reste plus de cette ville, jadis si riante, que des amas de décombres et quelques tépés, débris des antiques châteaux.
>
> C'est entre les villages de Zibâdjou et de Chéikhkhân que sont les restes de Dinâver ; le terrain est presque horizontal et là, comme à Hamadân, les indigènes pratiquent des fouilles pour rechercher les métaux précieux.
>
> Le sol est rempli de débris de tout genre et appartenant à toutes les époques ; ce sont des tessons de vases, des briques, des pierres dégrossies, des médailles datant depuis l'époque achéménide jusqu'aux temps arabes, des bronzes et des bijoux. Les Kurdes lavent les terres et partagent avec leurs khâns ; mais comme ces fouilles se font sans l'autorisation du gouvernement, ils sont très défiants et, sauf quelques menus objets, je n'ai rien pu me procurer pour fixer la date des ruines. Les médailles que je viens de citer m'ont été montrées à Hamadân ; on m'assura qu'elles avaient été découvertes à Dinâver, mais je ne puis répondre de l'exactitude des détails qui m'ont été fournis à leur sujet.
>
> Quoi qu'il en soit, l'importance considérable des monceaux de décombres qui marquent l'emplacement de la cité antique, l'étendue de ses ruines prouvent que la ville fut jadis grande et peuplée.
>
> En quittant la plaine de Dinâver, on gagne celle du Ghamâs-âb par un étroit défilé, taillé dans des rochers à pic par le passage des eaux et où dans l'antiquité une route a été creusée de main d'homme : on en retrouve encore les traces en plusieurs points.
>
> C'est auprès de Bisoutoun que l'Ab-e-Dinâver joint ses eaux au Ghamâs-âb. Non loin de cette célèbre localité, en amont et sur la rive gauche du fleuve, est un lieu dit Takht-é-Chirin où un tell renferme les ruines d'un palais probablement de l'époque sassanide.[95]

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[95] MORGAN 1895, 95–97.

De Morgan's description implies that the route followed by the French expedition was from the east, from Hamadan and Kangavar, possibly the same as that indicated by Ibn Ḥawqal and Iṣṭaḫrī. The location of the archaeological area is therefore quite clear and would allow further research, in view of the presence of at least one structure that is not mentioned in medieval or modern accounts (Figs. 4.6 – 4.7).[96]

If, thanks to the French scholar's account, it is possible to identify a specific location for Dinavar and the main road leading to it, the early 20th-century German travelogue of Franz Theodor Strauß helps determine that there is also another route to the site of this ancient city and its territory:

> "Auf einer Kettenbrücke, die in der Mitte so auf- und niederschwankte, daß man sich kaum auf den Füßen halten konnte, zogen wir über den Qara-su. Jedes Tier mußte entladen werden, denn mehr trug die Brücke nicht. Darauf nahmen wir die Richtung auf den bekannten Sassaniden-Skulpturfelsen Takh-i-Bostan zu und von dort in das Tal von Kinischt, das sich nach und nach zu einer wildromantischen Schlucht verengt, bis der Lolanpaß zwischen Parau und Kuhe Kinischt erreicht wird. Die Richtung war zuerst nördlich, dann nordöstlich und schließlich im Tale von Bernadsch östlich. Jenseits des Lolanpasses liegt in einem quellenreichen Tale das Dörfchen Zaluab (Blutegelwasser), bestehend aus einigen Erdhütten. Zeltlager der Pairawendkurden waren viele in den Seitentälern. Die zahlreichen Schaf- und Ziegenherden hatten das Land förmlich rasiert, es sah aus, als ob Heuschreckenschwärme es verheert hätten.

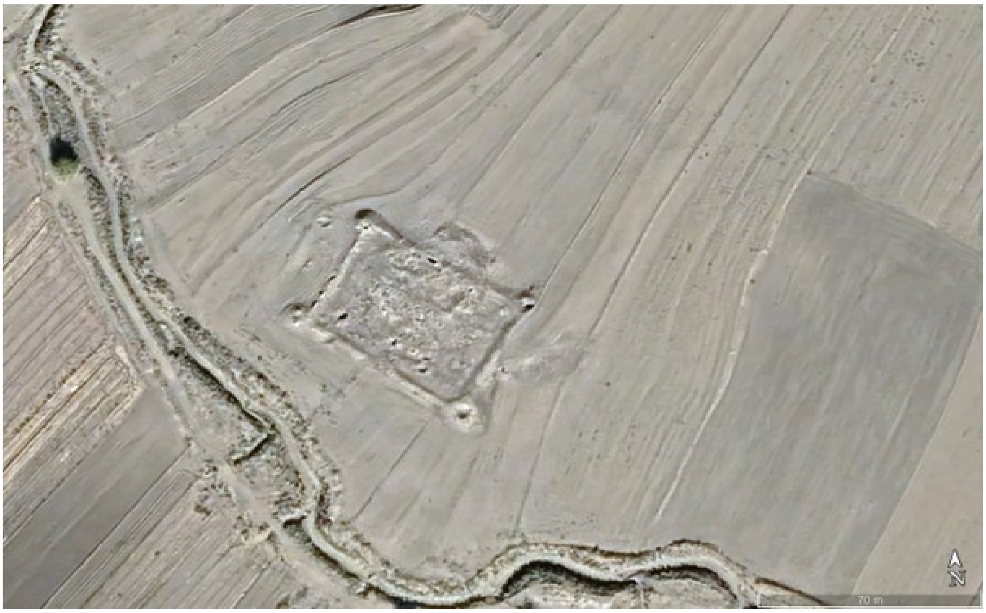

Fig. 4.6. Archaeological remains (caravanserai or small fort; for structural comparison see KLEISS 2016: 104–109) in the plain of Dīnavar (coordinates: 34° 36′ 55″ N, 47° 27′ 38″ E); satellite image dated 24 November 2022 (© Google Earth, CNES/Airbus 2022).

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[96] See MARCHETTI 2023, 116–123, for the localisation of Dinavar, with references to the sources and bibliography.

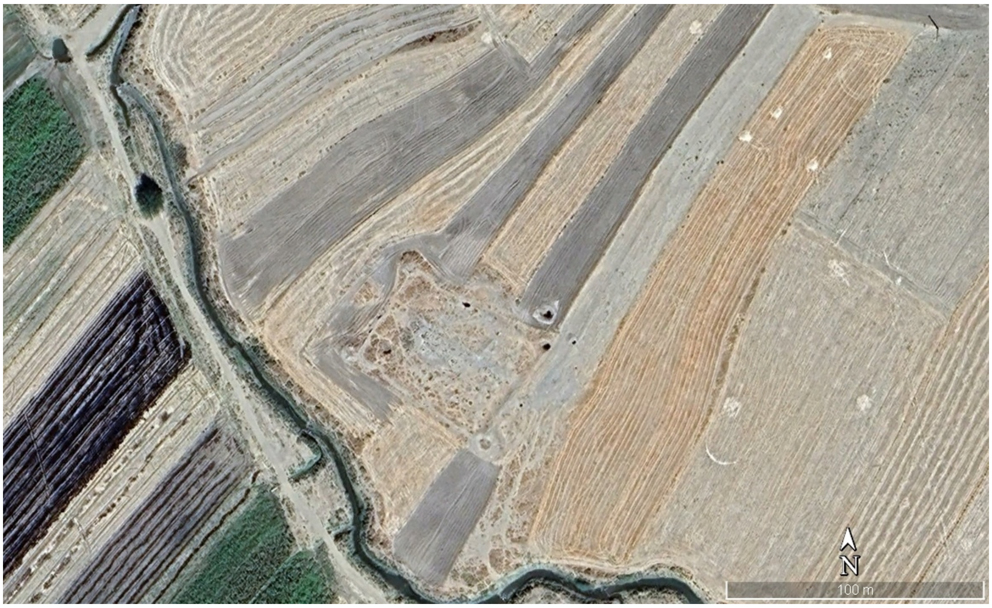

Fig. 4.7. The same remains of Fig. 4.6 in a more recent satellite image, dated 3 September 2024, showing signs of recent agricultural disturbance to the site (© Google Earth, CNES/Airbus 2024).

> Das Dorf Bernadsch, die erste Station von Kirmanschah, liegt in einem grünen Tale unweit einer mächtigen Quelle, die dem Parau entspringt. Es ist ein förmlicher Strom, der hier aus dem Felsen bricht. Das Dorf besteht aus elenden Erdhütten, die um einen künstlichen Hügel gruppiert sind, den die Ruinen eines von Emad-ed-Dowleh erbauten Lustschlosses krönen. Hier mündet der Weg in das breite Tal Teng-i-Dinawer. Es ist gut bewässert durch zahlreiche Quellen und den Fluß Ab-i-Dinawer, der stellenweise verdeckt, durch fast undurchdringliches Pappel- und Weidengebüsch seinen Lauf dem Gamas-ab zu nimmt. Schroffe Kalkfelsen begrenzen das Tal auf beiden Seiten, sie rücken näher an die Ufer heran, je weiter man nach N kommt. An manchen Stellen sind die Spuren einer in die Felsen gehauenen antiken Kunststraße zu verfolgen, die wohl Dinawer mit Bagdad verbunden hat. Bei dem Austritt aus dem Engpaß oder richtiger vor dem Betreten der fruchtbaren Ebene von Dinawer gelangt man auf einer soliden Backsteinbrücke über den Fluß. Der Weg wird sehr morastig, denn die Landleute haben die üble Gewohnheit, die ausgetretene Karawanenstraße als Kanal zur Bewässerung der Felder zu benutzen. Einer Karawane blieben die meisten Tiere im Morast stecken, und ebenso ging es meinen beladenen Maultieren, während sich die Pferde nur mit großer Mühe durcharbeiteten. Am Nordostrand der Ebene liegen die Ruinen der alten Stadt Dinawer. Nur Erdhügel deuten ihre Lage an. Diese sind schon zu verschiedenen Malen auf der Suche nach Münzen durchwaschen worden, noch jetzt werden zahlreiche Funde gemacht, besonders durch Bauern beim Bestellen der Felder. Auf den Bergen, die Dinawer im Süden und Westen begrenzen, kommt leichter Buchwald vor, nördlich und östlich aber sind die Berge kahl.
>
> Die Ebene von Dinawer liegt gegen 1500 m hoch. Der Weg führt zumeist in nördlicher Richtung über den 1950 m hohen steilen Paß Milleh-mas, von wo man hinuntersteigt in die von grauen Bergen begrenzte Ebene von Sungur mit der Stadt gleichen Namens,

> die eine gemischte Bevölkerung von Kurden, Persern und Afscharen hat. Sie hat viele Gärten, aber kein einziges hervorragendes Bauwerk."[97]

Strauß's account not only confirms de Morgan's earlier description, but also makes it possible to understand how the German vice-consul, travelling in a caravan of horses and mules, followed an alternative path from the west, not marked by any ancient itinerary, to reach Dinavar. The vivid description also hints at the environmental conditions that previous (pre-modern) travellers would have needed to deal with, in this case in the warm season. The very existence of Strauß's report also suggests that the varying distances in *farāsiḫ* given by the Islamic authors may indeed depend on 'shortcuts' in routes that are not always explicitly described in the sources (Fig. 4.8).

As noted above, Iṣṭaḫrī has details regarding a western-directed route from Dinavar to Shahrazur that covers 4 *marāḥil*, that is, interestingly for comparison, the same distance of the itinerary from Sarpol-e Zohab/Ḥolvān to Shahrazur. Other branches, however, also go to two places called Ṣaymara (requiring 5 *marāḥil*) and Sīrwān (4 *marāḥil*), while the route between Ṣaymara and Sīrwān is of only one *marḥala*. Unfortunately, no intermediate stations are mentioned for these trunks.[98] Regarding the manuscript transmission of Iṣṭaḫrī, in one codex the scribe has substituted the name Shahrazur for Suhraward (Sohrevard) in the description of a route that would otherwise lead north-east rather than west.[99] The concordance of the descriptions by Ibn Ḥawqal,[100] Yāqūt,[101] and ʿAbū ʾl-Fidāʾ [102] with the original version of Iṣṭaḫrī's account, however, clearly shows that this variant is out of place here. Therefore, there would be no need to trace another alternative itinerary that would go from Dinavar to Shahrazur taking a long detour north and then east, only to descend again towards the Mesopotamian lowlands.

Ṣaymara and Sīrwān are difficult to locate precisely, given the meagre data in the Islamic sources, but they should have been two sites located southwest of Dinavar. Ṣaymara was also the capital of the district of Mihriğānqaḏaq, according to Ibn Wāḍiḥ al-Yaʿqūbī.[103] Given the area in question, the town of Sīrwān mentioned here, perhaps to be read Sīrawān in the manuscripts, cannot possibly coincide with the almost homonymous site of "Shirwaneh/Shírwanáh" along the Diyala near Kalar.[104] Considering, therefore, the direction of these trunks to the south, the references to these two places in Iṣṭaḫrī and in the other authors’ accounts seem to have been selected mainly for the sake of comparing distances.

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[97] Strauß 1911, 69–70.

[98] Goeje 1870, ١٩٦.

[99] Goeje 1879, 406.

[100] Kramers 1999, ٣٦١; Kramers, Wiet 1964, 353.

[101] Barbier de Meynard 1861, 251; Wüstenfeld 1867, ٧١۴.

[102] Reinaud, Mac Guckin de Slane 1840, ۴٠٩; Guyard 1883, 159.

[103] Goeje 1892, ٢٦٩–٢٧٠; Gordon *et al*. 2018, 103.

[104] See above, n. 37. Modern description of the itinerary in Rawlinson 1839, 53–56; see also the references to the sources in Schwarz 1921, 466–467, 471–473.

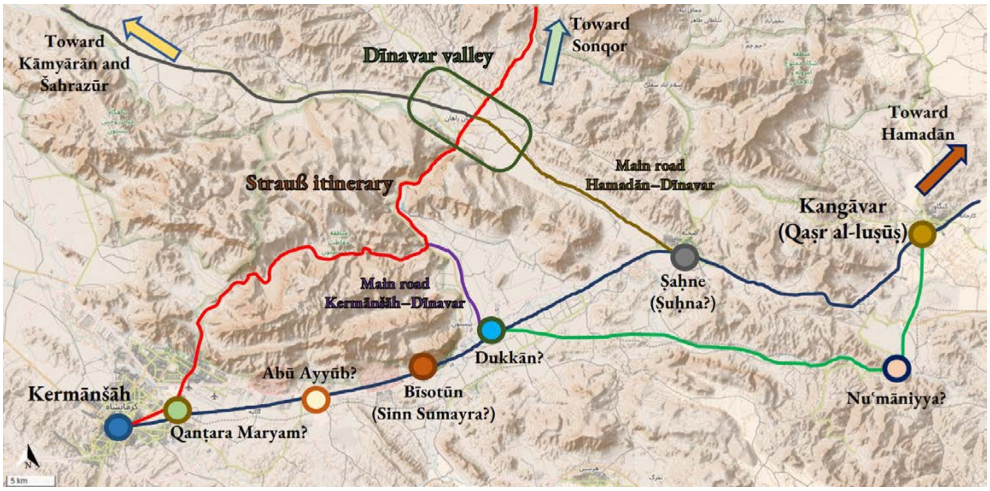
Toward Kāmyārān and Šahrazūr
Dīnavar valley
Toward Sonqor
Toward Hamadān
Strauß itinerary
Main road Hamadān–Dīnavar
Kangāvar (Qaṣr al-luṣūṣ)
Ṣaḥne (Ṣuḥna?)
Main road Kermānšāh–Dīnavar
Dukkān?
Nuʿmāniyya?
Abū Ayyūb?
Bīsotūn (Sinn Sumayra?)
Kermānšāh
Qanṭara Maryam?
N
5 km

Fig. 4.8. Itineraries in the area of Dīnavar, with attempts at locating some stations named in the Islamic accounts (© 2024 OpenStreetMap; drawing by the author).

Ebn Xordāḏbeh briefly recalls that the route passing through Dinavar also continues northwards. The main centres are:

- Dīnawar → Zanǧān: 29 *sikak*;
- Zanǧān → Marāġa: 11 *sikak*.[105]

Qudāma, more specifically, points to two possible routes heading north from Dinavar, one towards Sīsar and the other towards Zanǧān, both eventually converging on Marāġa.[106] In the direction of Sīsar the itinerary consists in:

- Sinn Sumayra → Dīnawar: 5 *farāsiḫ*;
- Dīnawar → al-Ḫawarǧān: 9 *farāsiḫ*;
- al-Ḫawarǧān → Tall Wān: 6 *farāsiḫ*;
- Tall Wān → Sīsar: 7 *farāsiḫ*.[107]

From Sīsar one follows two different roads depending on the season. In summer, one goes first to Bailaqān (10 *farāsiḫ*) and then to Barza (8 *farāsiḫ*); in winter, on the other hand, one goes first to Andarāb (4 *farāsiḫ*), and then to Bailaqān (5 *farāsiḫ*) and Barza (6 *farāsiḫ*). Considering that the distances are irreconcilable, one will have to think of two different routes even between the same stages. Continuing on we have two more stations:

---

[105] Goeje 1889, 91, ١١٩.

[106] Goeje 1889, 163, 171, ٢١٢, ٢٢٦.

[107] Goeje 1889, 163, ٢١٢–٢١٣.

- Barza → Sāburḫāst: 8 *farāsiḫ*;
- Sāburḫāst → Marāġa: 7 *farāsiḫ*.

The other itinerary recalled by Qudāma, instead, is the one heading towards Zanǧān, similarly starting from Sinn Sumayra. The road goes on as follows:

- Sinn Sumayra → Dīnawar: 2 *sikak*;
- Dīnawar → Yazdağird (last station in the territory of Dinavar in the direction of Zanǧān): 18 *sikak*;
- Yazdağird → Zanǧān: 11 *sikak*;
- Zanǧān → Marāġa: 11 *sikak*.[108]

The general picture that emerges from the sources on the routes passing through Dinavar is that of a town or district on a secondary branch of the Khorasan route that was brisk but not extremely busy.

However, despite its apparently minor role in the overall communication networks of the Zagros, Dinavar is characterised as being at the centre of at least four itineraries important enough to be mentioned in the Islamic sources. These consist in one from the south-west, from Kermanshah; one from the north-east, from Hamadan; one from the north-west, from Shahrazur; one from the north, from Marāġa and the Āḏarbāyǧān area. Moreover, at least one modern account confirms the existence of another minor route from Kermanshah.

This fact allows us to hypothesise that other connections, not documented by any source, may have been in use in the area. If this were true, it would help define a more widespread web of alternative links. These, in their turn, would have been used at different times of the year in variable climatic conditions to avoid encumbrances, but also to skip situations in which the main routes were no longer available due to natural events or the risks associated with travelling in an area subject to the passage of troops and armies.[109]

4.5. Conclusions

Although many places on the routes mentioned by the sources cannot yet be precisely located, the Pahlavi, Islamic, and modern data, taken in a global perspective, can complement each other to provide a clearer picture.

The Pahlavi materials, even if not very abundant, allow us to reconstruct at least the administrative terminology relating to this area in Sasanian times, as well as providing important data relating to the pre-Islamic myth-historical and cultural contexts.

The descriptions of the itineraries from the Islamic period confirm the impression that this area of the Zagros was important not only for long-distance communication between the Mesopotamian plain and the Iranian plateau, but also for interaction between local realities such as the Shahrazur and Dinavar districts. These sources, however, must always be supplemented with data from archaeological investigations to obtain the best results, as their information is often crucial to understanding whether different routes existed at different times. The case of the Diyala itinerary going north from Jalula along the banks of the river up to the Paikuli pass, which can be determined only thanks to archaeological remains, is very important in this respect.

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[108] GOEJE 1889, 171, ٢٢٦.

[109] Dinavar as a populated city, but possibly not as a sporadic settlement place for nomadic tribes, seems to have come to an end in the 12th century due to similar events, *i.e.* plundering, looting, and devastation by marauding soldiers; see MARCHETTI 2023, 98–116, for the history of the city.

Still, the location of the homonymous capital of the Shahrazur district remains an open question. According to the sources, the administrative centre of the region should have been located in the eastern part of the valley, since the main routes from the south seem to lead mainly in this direction. However, as already noted, the accounts do not always provide the details that would have allowed precise locations of urban centres in this area, and, for this reason, the primary sources remain of paramount importance. At present, unfortunately, there are no incontrovertible data to identify Shahrazur with a specific archaeological site. The case of Dinavar, instead, appears to be different, as the combination of literary data and the investigations of travellers and archaeologists seem to indicate that it was located in a specific area of the valley that still bears its name.

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5. Four Clay Sealings from the Slemani Museum (KRG Iraq): The Province of Ērān-āsān-kar-Kawād and Kawād I's Interest in Western Zagros

Bahra Salih, Gianfilippo Terribili

Abstract

The four bullae *presented in this paper are part of a significant collection of over 1,500 Sasanian clay sealings housed at the Slemani Museum in the Kurdistan Region of Iraq. This particular corpus stands apart from the rest of the collection both in terms of provenance and acquisition. Furthermore, two of these* bullae *bear the sealings of administrative offices from the province of Ērān-āsān-kar-Kawād. This evidence prompts further reflections on King Kawād I and the late Sasanian territorial strategy in the region between the middle course of the Diyala River and the Shahrazur plain.*[1]

Keywords

Sasanian *bullae*; Ērān-āsān-kar-Kawād; Shahrazur; Late Sasanian empire.

5.1. Introduction

On September 13, 2000, Mr. Fakhr Fayeq Rashi donated four clay sealings to the Slemani Museum, explaining that they had been accidentally discovered by a farmer in Zarayan, about 40 km south of the modern city of Sulaimaniyah, in the western Shahrazur plain (Fig. 5.1). These sealings, identified as late Sasanian *bullae*, were incorporated into a large collection of similar artifacts at the Slemani Museum, most of which had been acquired from the antiquities market. Although the exact findspot of the Zarayan sealings remains unclear, the general information regarding their discovery significantly enhances their value, enabling a more precise contextualization within both the regional historical framework and the administrative system of the late Sasanian period.[2]

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[1] The research stems from a long-standing scientific collaboration with the Directorate of Antiquities of Sulaimaniyah (KRG) and the Slemani Museum. In addition to the project 'Eranshahr: Man, Landscape, and Society in Arsacid and Sasanian Iran' (PRIN 2017), several other projects contributed to the development of this research, including 'Zagros Crossroads: A Study of the Historical, Territorial, and Road Networks of the Sasanian Provinces of Garmegan and Syarazur' (Sapienza University, 2021) and the archaeological missions MAIKI and SAMIra, supported by the Italian Ministry of Foreign Affairs (MAE).

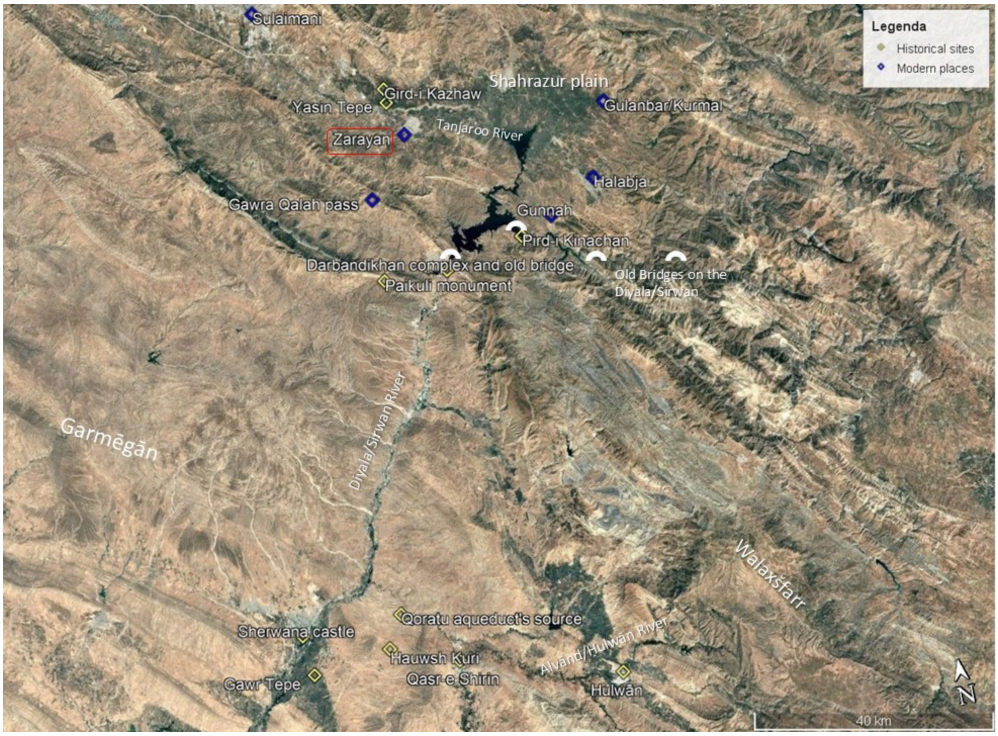
Legenda
Historical sites
Modern places
Sulaimani
Shahrazur plain
Gird-i Kazhaw
Yasin Tepe
Gulanbar/Kurmal
Zarayan
Tanjaroo River
Halabja
Gawra Qalah pass
Gunnah
Pird-i Kinachan
Darbandikhan complex and old bridge
Paikuli monument
Old Bridges on the Diyala/Sirwan
Garmēgān
Diyala/Sirwan River
Walaxšfarr
Qoratu aqueduct's source
Sherwana castle
Hauwsh Kuri
Qasr-e Shirin
Alvand/Hulwan River
Gawr Tepe
Hulwān
N
40 km

Fig. 5.1. The Shahrazur and Diyala regions, with the places and sites mentioned in the text.

5.2. SI.01527

The first *bulla* displays, at its center, the impression of a rounded seal depicting a so-called *Gōbedšāh* facing to the right (Fig. 5.2). This image presents notable deviations from the standard iconography typically associated with this motif.[3] The common representation of a *Gōbedšāh* features a winged bull with a human head, a bearded face, and a flat, fluted 'Persian' headgear. In contrast, the hybrid creature on SI 01527 has a bull's hump but no wings, its hair extending in spiral locks down to the shoulders and a beardless face. Most strikingly, it wears a *kolāh*, a rounded headdress adorned with a string of pearls. *Kolāh*s of this type are frequently seen in Sasanian art where, in this visual context, the headgears likely indicate the owner's social status and possible affiliation with institutional positions. The floating diadem ribbons—one encircling the human head and the other surrounding the bull's hump—underscore the individual's high rank and prestige. The rim of the *bulla* is decorated with a single-line Middle Persian inscription in cursive ductus (h. 5–9), accompanied by a floral motif positioned below to the right. The text provides the personal name of the owner and his patronymic:

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[2] Detailed records of the material are provided in Ms Bahra Salih's (Slemani Museum) MA dissertation, submitted to Sulaimani University in October 2022.

[3] See examples in e.g. BIVAR 1969, series EH–EJ, pl. 14; BRUNNER 1978, 67; GIGNOUX, GYSELEN 1982, 40.33–40.43, pl. 22; GYSELEN 1993, 40B.1–20, pl. XXXVIII–XXXIX; 1997, RMO 40B.1–23, pl. XXVII; and HUMBACH 1985 for the mythic figure of Gōbedšāh in Zoroastrian texts.

> **wyh-ʾtwrp[t] ZY ymʾsp[ʾn]** = *wēh-ādurbad ī jāmāspān* = Wēh-Ādurbad,[4] the son of Jāmāsp.

A small rectangular stamp seal featuring a standing lion (1.b) made a second impression on the *bulla*'s left side.

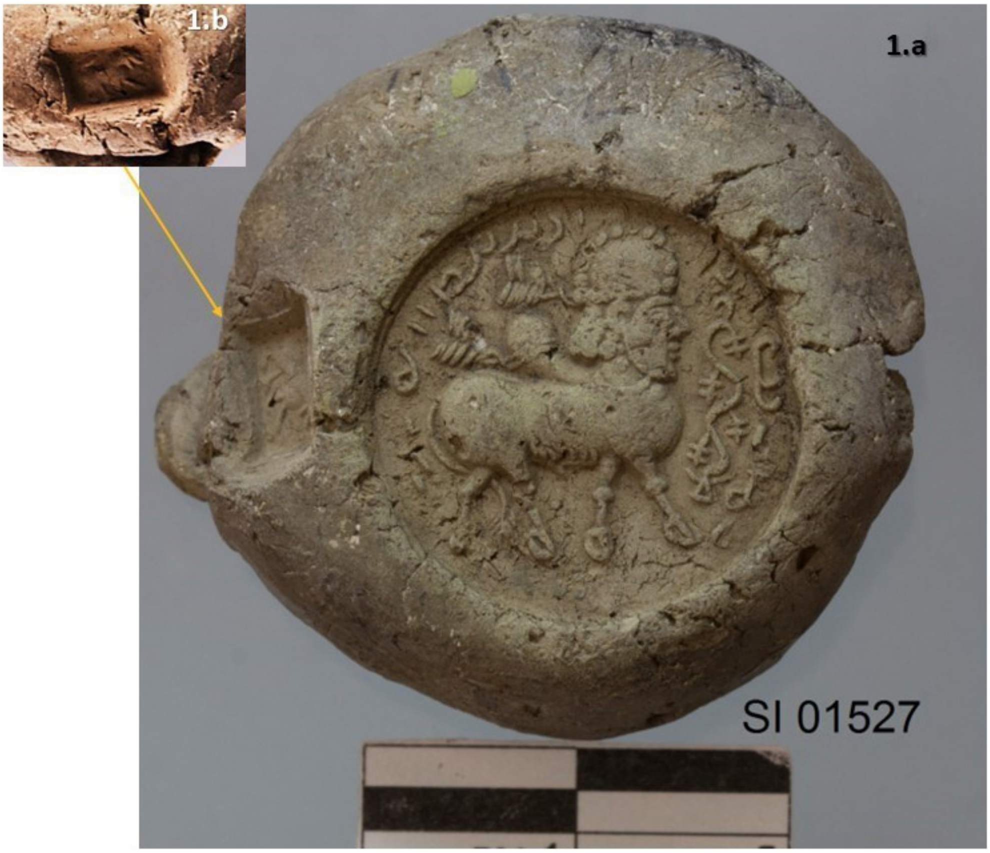

Fig. 5.2. Sasanian *Bulla* – SI 01527, courtesy of the Slemani Museum – Kurdistan Region of Iraq.

5.3. SI.01524

The *bulla* shows signs of burnt, blackish traces and some cracks. At its center is the impression of a personal seal, depicting the bust of a man with curly hair, facing right, and wearing the typical *kolāh* (Fig. 5.3). Above his right shoulder rises a crescent moon, while a pair of leaves frames the lower part of the bust. This type of decoration—along with similar motifs of wings—is a common feature in Sasanian glyptic, which enhances the representation of the individual and his/her status. Surrounding the human effigy is a Middle Persian cursive inscription (h. 4-8), which provides the owner's personal name, social status, and patronymic:

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[4] An alternative interpretation of this personal name could be: ʾ**twrplnbg**, *ādur-farrbay*.

> **yzd-šhpwhr' Y mgw Y hwslwdʾn** = *yazd-šābuhr ī mow ī husrōyān* = Yazd-Šābuhr,[5] the magus, the son of Husraw.

Two other seal impressions are visible on the *bulla*. The first (2.b), located at 5 o'clock on the main impression, depicts a felid walking to the right, with a one-word inscription above it. The inscription, difficult to interpret, likely corresponds to Middle Persian **dwst'** = *dōst* = 'friend', or **dwxt'** = *duxt* = 'daughter'. The first term may represent an auspicious formula, while the second could be an abbreviation of a personal name. The third impression (2.c), located at 9 o'clock, shows a long-tailed bird.

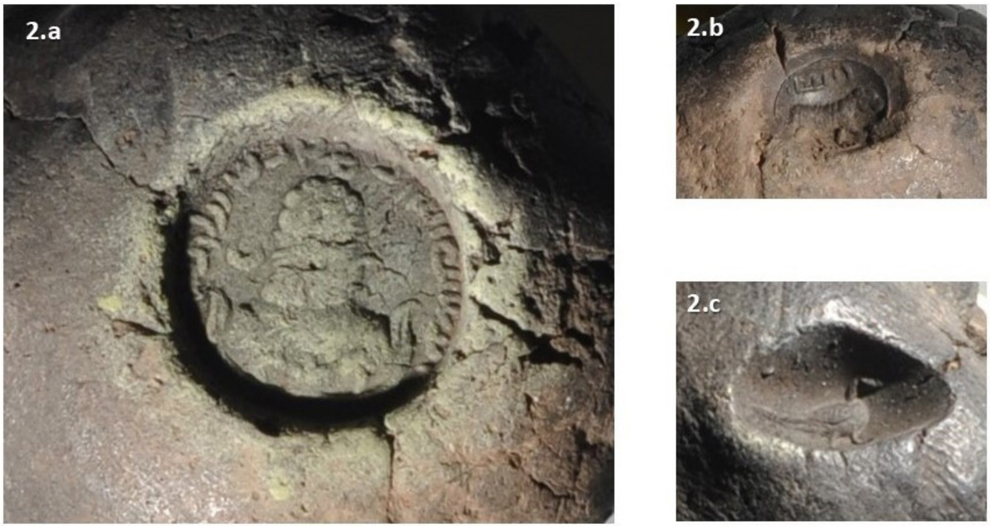

Fig. 5.3. Sasanian *Bulla* – SI 01524, courtesy of the Slemani Museum – Kurdistan Region of Iraq.

5.4. SI.01526

The *bulla* (Fig. 5.4) includes two large impressions: the aniconic and impersonal seal of a Sasanian administrative office (3.a) and the personal seal of the cosignatory (3.b). In the central field of 3.a, a two-line Middle Persian inscription in lapidary script identifies the name of the office (line 2) and its territorial jurisdiction (line 1). Around the rim runs the name of the provincial division that administered the district mentioned in line 1.

> l.1: **mwlwt** = *mūrōd/mawrūd*
> l.2: **mgwh** = *mowūh*
> On the rim (h. 8–11): **ʾylʾn ʾsʾn kl kwʾty** = *ērān-āsān-kar-kawād*

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[5] For this compound name, which is already attested in Sasanian glyptic, see Gignoux 2003, 69–70, n. 377. The interpretation of *husrōyān* as a placename – in turn derived froma personal name – seems less probable and not consonant with this kind of attestation.

This *bulla* was issued by the *mowūh*, a 'priestly' office, of the district of Mūrōd in the province of Ērān-āsān-kar-Kawād. In the late Sasanian period, the *mowūh* office was likely responsible for overseeing civil justice matters.[6] Although the exact location of the district remains unidentified, the second element of the compound name, *-rōd*, meaning 'river', belongs to a common class of Iranian hydronyms and corresponds well with the water-rich landscape of the lower Shahrazur plain.[7] The second large impression (3.b) displays a frontal bust of a man wearing a flat *kolāh*.[8] Two bundles of hair extend from the headgear and flow down past the shoulders. The garment is elaborately decorated around the chest and neck. This image is surrounded by an inscription that, unfortunately, has been poorly preserved. Only faint traces of the letter *mim* in the center of the inscription may indicate the social-status marker *mow*, meaning 'magus'. Such an interpretation is plausible, as *bullae* from 'clerical' administrations are often countersigned by a personal seal belonging to an individual of the priestly class, bearing the title of *mow*.[9]

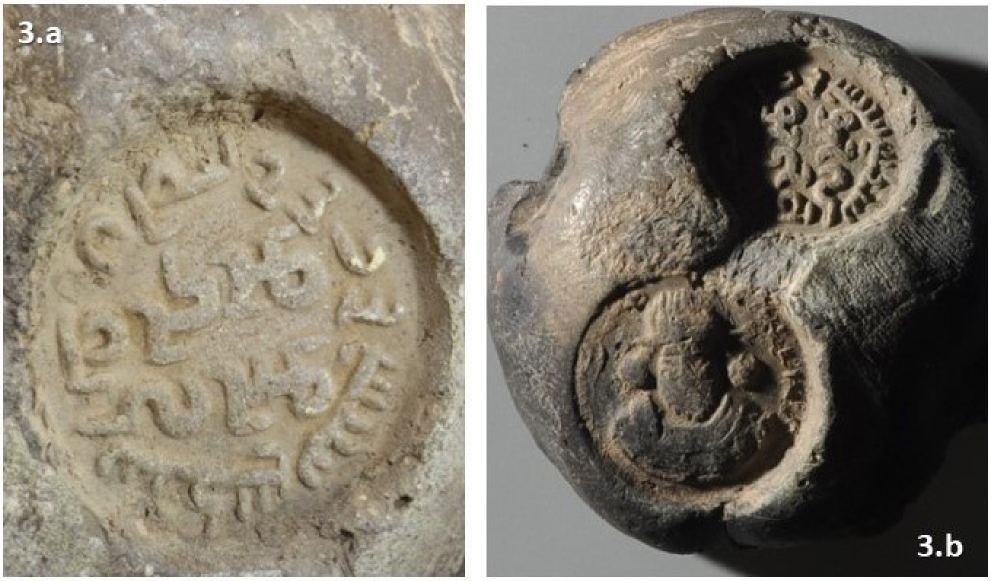

Fig. 5.4. Sasanian *Bulla* – SI 01526, courtesy of the Slemani Museum – Kurdistan Region of Iraq.

5.5. SI.01528

The final *bulla* in this corpus shares several similarities with the previous one (Fig. 5.5). Both specimens have been sealed by a *mowūh* office (4.a) and display the characteristic textual layout associated with this class of administrative seals. At the center of the field, the upper line (l.1) presents the name of the district jurisdiction, followed by the office title in the lower line (l.2).

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[6] GYSELEN 2019, 296–300, with references.

[7] For an overview of the water system in the Shahrazur Plain throughout history, see MÜHL *et al.* 2018.

[8] In Sasanian glyptic, the frontal depiction of the human bust is well attested, although it is less common than the profile view, which is typically turned to the right. Some examples of this can be found in BIVAR 1969, AF 2, 3, pl. 3; BRUNNER 1978, 1ab, p. 52; GYSELEN 1993, 20.G.1, pl. XV; 1997, RKP 20.11, pl. 1.

[9] For the relationship between cosignatories and administrative sealings, see GYSELEN 2007, 71–77.

l.1: **pnckʾn** = *panjagān*
l.2: **mgwh** = *mowūh*
Around the rim (h. 7–11): **ʾylʾn ʾsʾn kl kwʾty** = *ērān-āsān-kar-kawād*

As with the previous *bulla*, the name Ērān-āsān-kar-Kawād defines the jurisdictional province of this local administration. The identification of the district unit remains uncertain.[10] It is likely that the name is derived from the numeral five (MP *panj*) or a related form, such as *panjag* (meaning 'pentad' or 'hand'),[11] with the combination of the Middle Iranian suffix *-agān* in the first case, or simply *-ān* in the second.[12] These suffixes are commonly used in Middle Persian to form adjectives of affiliation, patronymics, and toponyms.

The impression of the co-signer's seal features a human bust facing right and wearing a rounded *kolāh*. Other markers of the owner's status include pearl earrings, a necklace, and dress decoration, as well as floral motifs at the base of the bust. An illegible inscription extends from 4 to 10 o'clock,[13] while three smaller impressions surround the main sealings (4.a and 4.b).

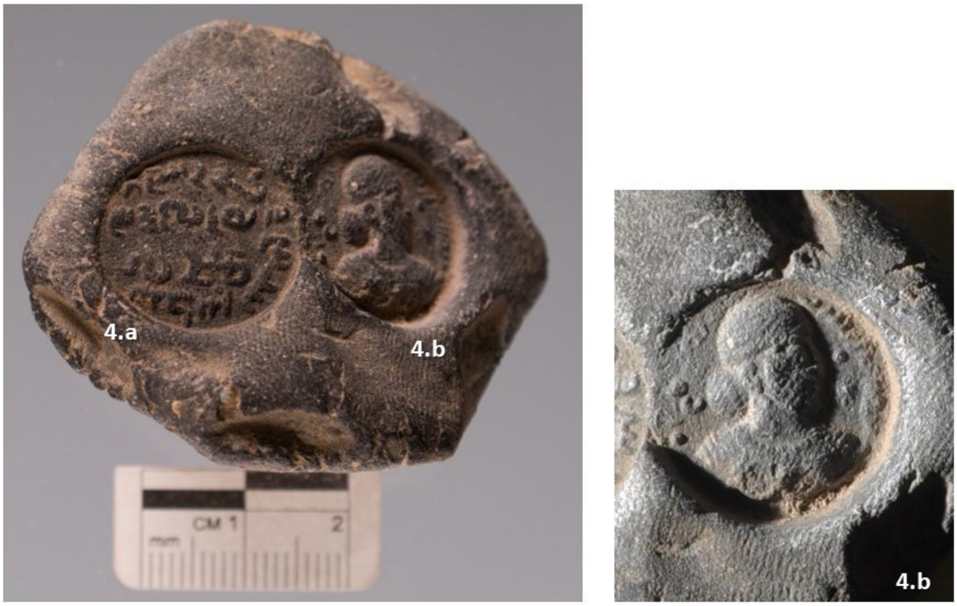

Fig. 5.5. Sasanian *Bulla* – SI 01528, courtesy of the Slemani Museum – Kurdistan Region of Iraq.

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[10] An alternative interpretation: **pncdʾn** = Panjdān. The name of the city of Penjwen and its district (Sulaimaniyah province) share, at least in the first part of the compound, a common derivation from the Iranian term for the numeral five.

[11] MacKenzie 1971, 64.

[12] Gignoux 1979, 42–48; Durkin-Meisterernst 2014, 158–159.

[13] Some attempts at reading are: **ʾpwn**..**lzʾn y** / **ypwn**..**lwsn y** / **spwn**..**lzʾn y**.

In summary, the four *bullae* from Zarayan exhibit consistent features. Notably, two of the clay sealings (SI 01526; SI 01528) originate from the same administration (*mowūh*) but represent offices within two different district jurisdictions (Mawrūd and Panjagān) in the same province (Ērān-āsān-kar-Kawād). The primary seals of two *bullae* (SI 01527; SI 01524) belong to individuals of high or official status, as indicated by the recurring iconographic features and visual motifs. Similarly, the two administrative *bullae* each bear a single seal from a high-ranking individual, appearing as either co-signatories or principal signatories. The differing identities of the individuals suggest that the material likely belonged to a local administrative archive, rather than a private one, although it is unclear at what hierarchical level it was situated.

5.6. The official name Ērān-āsān-kar-Kawād

Sasanian royal foundations and territorial subdivisions often adopted honorary names that combined the patron-king's name with terms reflecting royal ideology.[14] In addition to literary sources and royal inscriptions, the Late Sasanian administrative glyptic material provides striking evidence of these compounds, which could consist of two, three, or more elements. For many of these names, however, glyptic material represents their sole attestation. Moreover, these official titles primarily served administrative, legal, or documentary purposes and did not necessarily replace older, native toponyms, which continued to appear in other sources.

A consistent pattern emerges across this corpus of place names, featuring a range of codified concepts such as 'royal glory' (*xwarrah*, noun), 'implementation' (*abzūd*, past participle), 'prosperity' (*frāx*, adjective), 'elation/jubilation' (*šād*, adjective), 'peace' (*rām*, noun / *āsān*, adjective), and 'victory' (*pērōz*, adjective). The compositional structure always places the ruler's name at the end of the compound, following a pattern of 'right-dislocation' or 'inverted topicalization,' which highlights the royal name by its syntactic position.[15] This positioning underscores the significance of the patron king's name, making it the focal element of the construction. This phenomenon is well illustrated by verbal-compound names, where the predicate is either a past participle placed centrally (e.g., Ērān-abzūd-Husraw, "Husraw increased Iran" or Šahr-wīnnārd-Yazdgird, "Yazdgird arranged the kingdom"), or omitted altogether (e.g., Weh-Andiyōk-Šābuhr, "Better than Antioch, Šābuhr (made)").[16] The construction of these formulas modifies the standard syntactic order of Middle Persian (agent + object + verbal predicate) to enhance the message they express.

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[14] Colliva, Terribili 2017, 183–184.

[15] Given the writing direction of the Middle Persian script, it would be more accurate to describe this as 'left dislocation,' emphasizing the prominence of the final element in the syntagm or sentence.

[16] Alternatively, the first example could be interpreted as a possessive compound, meaning "the King has a better Antioch".

The name Ērān-āsān-kar-Kawād (Kawād made Iran peaceful/easy) is a clear example of a verbal compound, though the verb predicate (*kar*) is here apocopated, as is common in Sasanian glyptic.[17] The adjective *āsān* has a broad semantic range—'at rest, calm, comfortable, peaceful'[18]—and conveys the eulogistic intent behind this official designation.[19] The third chapter of the Middle Persian *Widēwdād*, which repeatedly uses the formula *kū fradom ēn zamīg āsāntom* [*kū mēnōg ī zamīg āsānīh az čē wēš*],[20] "Where is it first most peaceful (place) on earth? [Where does the spirit of the Earth (have) more peace/comfort?],"[21] illustrates how the term *āsān* was employed by Sasanian intellectuals in connection to the earth or a ideal places. In the context of the provincial designation, the term *āsān* serves to emphasize King Kawād I and his political achievements, likely alluding to his role in restoring stability after his father's failed campaigns against the Hephtalites, the Mazdakite uprisings, and/or the three-year deposition that divided his reign into two periods (488–496, 498–531 CE).[22]

Alternatively, the adjective *āsān* might more specifically refer to the territorial reforms implemented under Kawād I, potentially indicating measures that made the land more accessible or manageable for agricultural or urban exploitation. This interpretation aligns with the territorial policies initiated by Kawād I and corresponds to the landscape of the Zagros mountains, where the fragile environment requires continuous maintenance and infrastructure development to sustain road connectivity and irrigation systems.[23]

Ultimately, the official label Ērān-āsān-kar-Kawād appears to have fallen out of use after the Sasanian period and is no longer found in subsequent records. As a result, the precise location of the province remains a matter of scholarly conjecture.

5.7. Geographical location of Ērān-āsān-kar-Kawād

In the 1930s, the German scholars J. Markwart and E. Herzfeld identified the province of Ērān-āsān-kar-Kawād as part of southern Khuzestan.[24] However, decades later, through a more detailed analysis of glyptic and literary sources, M. Morony and R. Gyselen placed this province on the eastern bank of the middle Diyala River.[25] It is this latter hypothesis that can now be further supported by the material housed in the Slemani Museum.

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[17] See Frāx-kar-Pērōz (GYSELEN 2019, 75–76). The extended form with *kard* (Ērān-āsān-kard-Kawād) is found in the Pahlavi text *Šāhrestānīhā ī Ērānšāhr* §54 (MARKWART 1931, 21; DARYAEE 2002, 23, 72).

[18] MACKENZIE 1971, 12; NYBERG 1974, 31.

[19] For a comparable official designation, see Šahr-rām-Pērōz (GYSELEN 2019, 210), "Pērōz peace of the reign / Pērōz (bestowed) peace to the reign".

[20] The MP term *āsāntom* translates here the Young Avestan *šāišta-*, "der erfreulichste; behaglichsten" (BARTHOLOMAE 1904, 1707), connected to the concept of blissful happiness.

[21] MOAZAMI 2014, 68–69.

[22] For an overview of Kawād I's turbulent reign, see BONNER 2020, 140–170, with references.

[23] See PANAHIPOUR 2021 and below.

[24] MARKWART 1931, 105; HERZFELD 1938, 420–421.

[25] MORONY 1984, 127–128; GYSELEN 2019, 68–69.

Earlier glyptic evidence consisted of four administrative seals/sealings,[26] including a *bulla* issued by the office of the *āmārgar* (financial accountant)[27] and a chalcedony dome-shaped seal of the *ōstāndār* (provincial governor). The latter seal confirms the juridical status of Ērān-āsān-kar-Kawād as an *ōstān*.[28] The distinction between the two provincial qualifications, *ōstān* and *šahr*—governed by an *ōstāndār* and a *šahrab*, respectively—remains difficult to determine. Presumably, *ōstān*s were either newly established units or royal allotments. As R. Gyselen (2007, 37) noted, "the most likely explanations are that the provinces in question (i.e. the *ōstān*s) may have had a different relationship with the central government or that the persons in charge had a different status; perhaps both were the case."

The *ōstāndār* seal bears the abbreviation *ērān* [ʾ**yl**ʾ**n**] at its center, which matches an identical mint abbreviation found on coins dated to the 32nd year of Kawād I's reign (522 CE).[29] More broadly, Sasanian kings often established minting workshops in connection with their new foundations, suggesting that the dating of these coins may be linked to the establishment of the province or its administrative center.

The other glyptic attestations of Ērān-āsān-kar-Kawād include two sealings belonging to the *mowūh* office. Together with the evidence from Zarayan, this brings the total number of attested district jurisdictions for the province to four.[30] In this case, the districts are Kēn/Kayin[31] and Arbān/Arwān,[32] both of uncertain locations. According to E. Herzfeld (1938, 420), the *mowūh* sealings were acquired in Harsīn (approximately 50 km south-east of Kermanshah), a busy antiquities market at the time, which also brought the Luristan bronzes to light.[33] For this reason, the evidence does not provide much information about the place of discovery. However, it is reasonable to assume that, at the beginning of the 20th century, the *bullae* did not travel far within the region. Herzfeld suggested identifying Arbān with the city of Ḥulwān, citing Ṭabarī's statement that the urban settlement was founded by Kawād.[34] However, this identification is controversial, as other Muslim authors provide different official Sasanian designations for both the city and its surrounding districts. Moreover, Ḥulwān is often associated in Syriac and Arabic sources with Balāšfarr, corresponding to the province-name Walaxšfarr attested in late Sasanian glyptic material.[35] It is also worth noting that the name Ḥulwān/Alvānd refers to the river that flows north-west from Sar-Pol towards Qasr-e Shirin, then turns south towards the confluence with the Diyala River. Therefore, the name Arbān/Arwān, as attested in the *mowūh* sealing, might refer to a district crossed by this river rather than the city itself. Finally, considering the palaeographical features, the ductus of this bulla displays a sharp-shaped script rarely used for administrative seals, closely resembling the script seen in the aforementioned personal sealing (SI 01524) from the Slemani Museum collection.

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[26] Gyselen 2019, 68–69; see also Herzfeld 1938, 420–21, fig. 16–17; Gyselen 1989, 46–47; 2002, 142.

[27] For this sealing see also Akbarzadeh *et al.* 2009, 57, 60, n. 77 and n. 83.

[28] Gyselen 2002, 106–110, 117–119; 2007, 37–42; 2019, 10, 303–305.

[29] See Gyselen 2019, 69, where a silver drachma dated to the 33rd year of Kawād, bearing the mint abbreviation *āsān* [ʾ**s**ʾ**n**], is equally presented as potentially attributable to the Ērān-āsān-kar-Kawād provincial mint. It is important to note that in the small script on the coins, the cluster '**yl**' [ʾ**yl**ʾ**n**] can be rendered in a way very similar to the grapheme for '**s**' [ʾ**s**ʾ**n**].

[30] According to R. Gyselen (2019, 296), the average number of district subdivisions per province was approximately ten units.

[31] Herzfeld 1938, 421, fig. 17.

[32] Herzfeld 1938, 420, fig. 16.

[33] Godard 1931.

[34] See also Markwart 1931, 105 and Gyselen 2019, 68–69 for additional designations of the city, as well as the section below for Kawād I's presence in the area.

As regards the district of Kēn/Kayin, Yaqut's mention of Qinna among the dependencies of Shahrazur merits some attention.[36] The Iraqi archaeologist F. Safar (1974, 198) tentatively identified Yaqut's Qinna with modern-day Gunnah (also Gubdeh, as, e.g., on Google Maps), a small village located southwest of Halabjah, in the southern part of the Shahrazur plain (Fig. 5.1). Not far from the village lies an artificial mound, associated with a purported Sasanian bridge over the Diyala/Sirwan River, known as Pird Kinachan. The discovery of Ērān-āsān-kar-Kawād *bullae* in the nearby Zarayan allows for a connection between the district of Kēn, attested in one of the previously identified Ērān-āsān-kar-Kawād *mowūh* sealings, and the district of Qinna in medieval Shahrazur, as recorded by the Islamic geographer.

In light of the Zarayan material, two main conclusions can be drawn: A) The site of ancient Zarayan, along with its archive, was likely under the jurisdiction of the Ērān-āsān-kar-Kawād province. B) Alternatively, the Zarayan archive may have belonged to a different jurisdiction, containing sealings from neighboring provinces, as well as those—as yet unverified—from local offices. The evidence from the Qasr-e Abu Nasr archive in Fars calls for caution, as it suggests significant circulation of sealings between adjacent provinces.[37] Furthermore, the location of Zarayan, situated near the passes (Gawra Qalah and Paikuli) connecting the Tanjaroo Plain with Garmēgān and the middle course of the Diyala, warrants further scrutiny. Nevertheless, the fact that the unique administrative attestations from this archive belong to two different districts within the same province strengthens the hypothesis that the archive was indeed part of the Ērān-āsān-kar-Kawād territorial jurisdiction.

The presence of little-studied ancient bridges over the Diyala/Sirwan River in the area of the Shemiran range is of notable significance. These bridges spanned the Diyala/Sirwan River[38] at key points along the southern access routes to the Shahrazur plain.[39] Specifically, two bridges—Darbandikhan and Pird-Kinachan—

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[35] For MP Walaxšfarr and Syr. Balāšfarr, see Gyselen 2019, 225; Jullien 2007, 84, 91. According to Syriac sources, the province of Balāšfarr/Walaxšfarr shared a common border with Garmēgān. However, the Syriac designations, which reflect historical or native names, do not necessarily align with the territorial divisions of the Sasanian administration. It is likely that the territory of Walaxšfarr originally extended beyond the boundaries of the corresponding administrative unit in the late Sasanian period.

[36] Barbier de Meynard 1861, 460; see also Schwarz 1926, 704; Minorsky, Bosworth 1997, 218.

[37] Frye 1973; for the 'mobility' of the *mowūh bullae* see also Gyselen 2019, 68.

[38] The river is known as Sirwan in Kurdish language.

[39] Safar 1974, 194–196.

mark the routes leading to two crucial areas of the Shahrazur plain:[40] Pird Kinachan connected the southeastern edge (Halabja and Gulanbar), while the other provided access to the western and upper Shahrazur, including the sites of Zarayan and Yasin Tepe, via the Gawra Qalah ('Great Castle') pass. Unfortunately, both absolute and relative dating of these infrastructures remain unknown, although the structural features of Pird-Kinachan suggest the use of late antique construction techniques.[41] Likewise, the presence of ruins of a small Sasanian/early Islamic complex or caravanserai near the Darbandikhan bridge suggests that these routes may have been part of a larger infrastructural project aimed at improving regional connectivity during the period in question.[42]

The need to strengthen the connection between the Shahrazur plain and the central course of the Diyala River must have been urgent, particularly when the two areas were brought under the same administrative jurisdiction, as attested in the early Islamic period.[43] This context aligns with the information provided by Ḥamza Esfahānī about the city founded by Kawād I, named Ērān-šād-Kawād, "Kawād (made) Ērān joyful", located between Shahrazur and Ḥulwān.[44] R. Gyselen (2019, 68) noted that the otherwise unknown name of the city could represent a corruption of the form Ērān-āsān-kar-Kawād, attested in the administrative glyptic and in the Middle Persian geographical text known as *Šahrestānīhā-ī Ērānšahr*.[45] However, the transition from *āsān-kar* to *šād* remains unclear, unless we assume an influence from other official designations incorporating the Middle Persian term *šād*.[46]

Direct literary sources on Ērān-āsān-kar-Kawād are limited and brief. The *Šahrestānīhā-ī Ērānšahr* (§ 54), a Middle Persian catalogue of the major Sasanian cities, states:

> *šahrestān ī ērān-āsān-kard-kawād* [*kawād*] *ī pērōzān kard*
> "The city of Ērān-āsān-kard-Kawād was built by (*Kawād), the son of Pērōz."[47]

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[40] SAFAR 1974, 195–196, proposed dating Pird-i Kinachan to the late Parthian-Sasanian period. Similar wedged piers can be found at the bridge over the Gamasiāb River (Bisotun area). To the best of my knowledge, no reliable studies have been conducted on the remains of the old bridges at Darbandikhan and Pird-i Kurhan. The Pird-i Kinachan and Darbandikhan bridges were likely connected to routes leading from Qasr-e Shirin in the south, while the easternmost bridge, Pird-i Kurhan, was linked to the road coming from Dinavar in the east. See also EDMONDS 1957, 198.

[41] SAFAR 1974, 194–195.

[42] In February 2006, the Italian team working at Paikuli visited the untouched site and observed architectural and planimetric patterns similar to those found at the late-Sasanian site of Hawsh Kuri. Unfortunately, the structure in Darbandikhan was later destroyed by a misguided attempt at reconstruction for tourism exploitation.

[43] According to Muslim authors, Shahrazur dependencies bordered southward with the districts of Khanaqin and Karkh Juddān along the Diyala river (SCHWARZ 1926, 696; FIEY 1968, 72). The southward extension of Islamic Shahrazur may reflect a situation that was already established during the Late Sasanian period as part of the Ērān-āsān-kar-Kawād jurisdiction.

[44] HOYLAND 2018, 70.

[45] See below.

[46] For instance, the name of the province Husraw-šād-Kawād.

[47] MARKWART 1931, 21; 105; DARYAEE 2002, 23, 28.

This passage is not particularly informative and appears within a somewhat confused section of the text. As a result, Ērān-āsān-kar-Kawād seems out of place, being listed in the southern quadrant of the empire (*pad kust ī nēmrōz*).[48] More accurately, the Armenian geographer Ananias of Širak attributes the province of Ērān-āsān-kar-Kawād to the western quadrant (Arm. *kʿustak-i-xoruaran* = MP *kust ī xwarbarān*),[49] Placing it between Garmēgān and Nod-Ardaxšīragān, the latter roughly corresponding to ancient Adiabene. Interestingly, Ananias' designation of Nod-Ardaxšīragān (*Notartay Širakan*)[50] differs from that found in other Armenian texts and matches with late Sasanian sources, a fact that lends additional credibility to this list.[51] This passage indicates a geographical proximity between these three provinces, corresponding to the actual location of the western Shahrazur plain, a region crisscrossed by routes and mountain passes linking it to the other historical territories mentioned by Ananias in the relevant passage (Fig. 5.6).

This proximity is further supported by the Zarayan find, leading to the assumption that at least some of the lower and western districts of Shahrazur were part of the Ērān-āsān-kar-Kawād administrative unit. Consequently, it is likely that these areas of the plain were involved in King Kawād's territorial reorganization.

Due to the nature of the available sources, it is difficult to precisely define the borders of Ērān-āsān-kar-Kawād in relation to other provincial units of the western and central Zagros macro-region, as attested by late Sasanian glyptic sources. These include the provinces of Walaxšfarr, Garmēgān, Syārazūr, and Mād-kust-ī-Wastān. Whether the Ērān-āsān-kar-Kawād province included ancient Zarayan and the southern part of the Shahrazur plain remains uncertain. Nevertheless, we can tentatively establish the following relationships: Walaxšfarr lies to the east-southeast of Ērān-āsān-kar-Kawād, encompassing the so-called Zagros Gate (Paytak Pass); Garmēgān to the west-southwest; Nod-Ardaxšīragān to the northwest; Syārazūr to the north-northeast; and Mād further to the east.[52]

It is reasonable to assume that the newly formed province of Ērān-āsān-kar-Kawād was created by combining territories from the pre-existing, larger regions of Walaxšfarr, Syārazūr, and Garmēgān.[53] This reconfigured entity was strategically situated between these three historical territories, playing a crucial role in controlling key communication routes between Āsōrestān—with its royal estates—and the Iranian Plateau, thus overseeing mountain and river passages that led to Ādurbādagān and the Ādur Gušnāsp fire temple.[54]

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[48] Gyselen 1988, 199, 203, reassigns the province to the western quadrant, noting that in the *Šahrestānīhā ī Ērānšahr*, there are several overlaps between the southern and western quadrants. Moreover, §54 is preceded by *šahrestān ī gay* (i.e., Esfahan), the otherwise unknown *šahrestān ī aškar* in §55, and *šahrestān ādūrbādagān* in the following paragraph.

[49] Hewsen 1992, 228–233, with references. Arm. *Eran-asan-kʿart-Kavat*, or *Eran-astan-kart-Kavat* in the shortened list, see also Morony 1984, 127–128. Yaʿqubi (Hoyland 2018, 132), like other Arabo-Persian authors, places Shahrazur in the region of Jibal, but in reference to the Sasanian kingdom, he places all these territories under the authority of the *iṣbahbadh* (i.e. MP *spāhbed*) of Ādurbādagān.

[50] Hewsen 1992, 228–232.

[51] In early-Sasanian inscriptions and other literary sources the corresponding name is Nōdšīragān (Gyselen 2019, 165–166; Terribili 2020, 213–215).

[52] See the location of these administrative units in R. Gyselen's (2019) reconstruction.

[53] For the region of Syārazūr/Shahrazur, see Gyselen 2019, 205; for Islamic sources see Schwarz 1926, 694–706; Minorsky, Bosworth 1997; for Syriac sources see Hoffmann 1880, 264–265; Fiey 1968, 67–71.

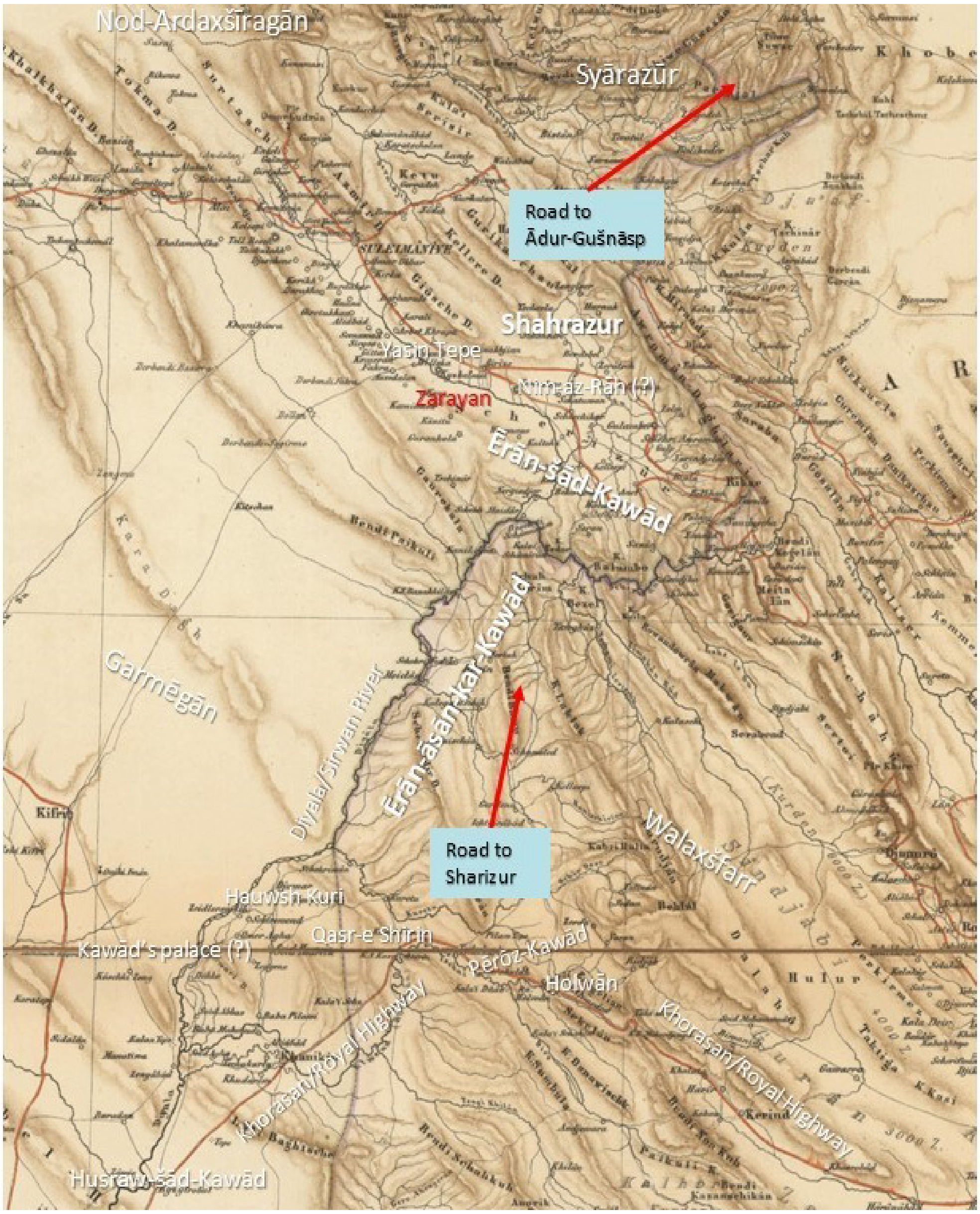
Nod-Ardaxšīragān
Syārazūr
Road to Ādur-Gušnāsp
Shahrazur
Yasin Tepe
Zarayan
Nīm-az-Rāh (?)
Ērān-šād-Kawād
Ērān-āsān-kar-Kawād
Garmēgān
Diyala/Sirwan River
Road to Sharizur
Walaxšfarr
Hauwsh Kuri
Qasr-e Shirin
Kawād's palace (?)
Pērōz-Kawād
Holwān
Khorasan/Royal Highway
Khorasan/Royal Highway
Husraw-šād-Kawād

Fig. 5.6. The proposed placement of Ērān-āsān-kar-Kawād and its relationship with neighbouring late Sasanian provinces – based on HAUSSKNECHT, KIEPERT 1882, pl. 3.

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[54] Conjecturally, the territorial fragmentation of the old Syārazūr – 'The Black Forest' – may have contributed to the shift in naming during the Islamic period, when the larger region came to be known as Shahrazur, 'The Royal/Great Forest.' For interesting observation on the name Syārazūr/Shahrazur see C. Marchetti in the present volume, with references.

5.8. Kawād I's presence in the macro-region

By drawing on various types of sources, it is possible to outline a coherent program of land improvement across the entire macro-region during the late Sasanian period. This is particularly evident in the context of Kawād I's activities within the region extending from the Tigris River to the borders of Media and Ādurbādagān. The aforementioned passages from Ḥamza Esfahānī and Ṭabarī provide a valuable indication of this. The former refers to the foundation of the city of Ērān-šād-Kawād between Ḥulwān and Shahrazur, [55] while the latter, along with Ibn al-Faqīh, mentions Ḥulwān as the site of Kawād's re-foundation.[56] Similarly, Ibn Hordādhbih and Qudāma refer to the district of Pērōz-Kawād (Fairūz Qubādh) or Šād-Pērōz-Kawād, respectively, as encompassing the city of Ḥulwān itself. [57] The correspondence between the names reported by these Islamic authors and typical Sasanian official designations suggests the reliability of this information.

In this context, the literary account of Īšōʿsabran, a Nestorian martyr under Husraw II, that mentions a palace built by Kawād I on the eastern outskirts of Garmēgan, along the road to Ḥulwān, [58] underscores the ambitious program implemented by this king in the region. During the final centuries of Sasanian rule, large royal estates were indeed concentrated in the area between the Diyala and Ḥulwān rivers. Complexes, as evidenced by the archaeological sites of Dastegerd, Hawsh Kuri, and Qasr-e Shirin, served as key centers for control, production, and the representation of royal power along the so-called 'Khorasan/Royal Highway' (Fig. 5.6). These estates likely formed an interconnected network that controlled communication and supply routes converging at Ctesiphon, including the crossroads where the northern branch of the same route led to Shahrazur and Ādurbādagān.[59]

As a recent survey conducted by Glasgow University has highlighted, there was significant development in settlement, agriculture, and water management within this section of the Diyala basin during the Sasanian period.[60] In this area, Sasanian evidence includes a 40 km-long artificial canal along the right bank of the Diyala,[61] the monumental complexes of Hawsh Kuri and Gawr Tepe,[62] and—so far unrecorded—the approximately 18 km-long canal that channels water from the Qoratu River to the Hawsh Kuri complex and the plain on the left bank of the Diyala River (Fig. 5.7).[63] Although the lack of more detailed archaeological data prevents a precise reconstruction, these examples provide insight into the Sasanian approach to engineering and territorial management. Such large-scale initiatives would have undoubtedly required a centralized effort and a consistent strategy of royal investment. Although described in broad terms and applied to the entire kingdom, sources such as Ṭabarī (BOSWORTH 1999, 130), Yaʿqubi (HOYLAND 2018, 116), and *The Chronicle of Siirt* (HOYLAND 2018, 146) provide insight into Kawād I's territorial policy, highlighting his efforts to implement infrastructure projects and manage land resources.

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[55] HOYLAND 2018, 70; SCHWARZ 1926, 704.

[56] BOSWORTH 1999, 130; SCHWARZ 1926, 677. Eastward along the Khorasan/royal road, Kawād I is also credited with the renovation of the city of Kermanshah; see Schwarz 1926, 481, for further references.

[57] SCHWARZ 1926, 683.

[58] JULLIEN 2004, 180, n. 93.

[59] The importance of the route branching from the 'Khorasan Highway' in this area and heading northward is evident in the attention given by Muslim geographers to the itinerary Qasr-i Shirin/Ḥulwān – Shahrazur (SCHWARZ 1926, 696, 915–916). Similarly, the episode during Heraclius' campaign in 627–628, when the Roman emperor, after devastating the royal palace at Dastegerd, moved northward to Syārazūr and later Ādurbādagān, highlights the strategic significance of the route and the territory it traversed in the late-Sasanian period (MINORSKY 1944, 251; CERETI *et al.* 2015, 272; HOWARD-JOHNSTON 2020, 317–320). The emperor camped in Syārazūr for the entire month of February 628, supplying his army and observing, from an advantageous position, developments at the Sasanian court. The simultaneous plundering of the Diyala basin and Syārazūr settlements, as recorded in sources such as *The Chronicle of Seert* and Theophanes' *Chronicle* (HOWARD-JOHNSTON 1999, 4–6; 2020, 317), seems to have been aimed at severely damaging key supply areas and communication lines leading to Ctesiphon, thereby exerting pressure on political decisions within the Sasanian leadership.

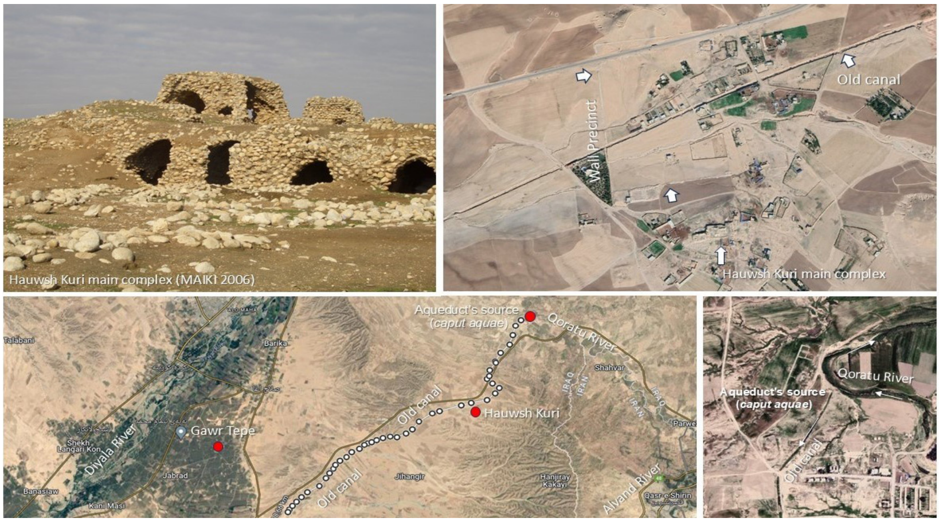

Fig. 5.7. The site of Hawsh Kuri and the Qoratu canal.

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[60] CASANA, GLATZ 2017, 58–62; for Lower Diyala, see extensively ADAMS 1965. More recently, an essay on the area between the banks of the Diyala and the western part of Kermanshah province highlights the dynamics between agriculturalism, pastoralism, and settlement patterns during the Sasanian period (PANAHIPOUR 2021). For the Central Zagros region, see HABIBI 2024.

[61] The canal skirts the ancient site of Shirwana Castle, situated south of the modern city of Kalar (CASANA, GLATZ 2017, 56 fig. 6, 57).

[62] CASANA, GLATZ 2017, 59–61. Fieldwork at the site is currently led by the Italian archaeologist Luca Colliva and the MiSAK Project in Iraqi Kurdistan of the University of Bologna (COLLIVA *et al.* 2023). Particularly interesting is the evidence of stucco decorations from the main complex of this site. M. Panahipour (2021, 12–14) mistakenly overlaps the two sites of Gawr Tepe and Hawsh Kuri. The significance of the Hawsh Kuri palatial complex (CANEPA 2018, 373–374) in the regional land-use and network system is currently underestimated, primarily due to the lack of reliable studies on its area, which is now situated along the Iraq–Iran border.

[63] The canal is visible in satellite images. It originates from the Qoratu River, near the homonymous village (latitude: 34°36′40.66"N; longitude: 45°29′39.22"E), and crosses an enclosed area connected to the Hawsh Kuri complex (latitude: 34°33′51.87"N; longitude: 45°27′43.82"E).

The Sasanian glyptic further supports this view, with a series of official designations under Kawād's name reflecting the reorganization of contiguous territories between the Euphrates and upper Diyala, including the provinces of Weh-Kawād, located to the west of Ctesiphon, Husraw-šād-Kawād, extending from Ctesiphon to Jalula and the Diyala,[64] and further north Ērān-āsān-kar-Kawād itself.

Kawād's relevant activities in this macro-region may have anticipated Husraw's division of the empire into four quarters, as well as the arrangement of the western quadrant.[65] Taken together, the available data suggest broader implications for the progressive centralization of governance, with Ctesiphon emerging as the epicenter of power. As the royal capital became more firmly established, the development of its surrounding hinterland became a priority.[66] Therefore, the reorganization and consolidation of lands linking the Tigris plain to the western Zagros foothills was of vital importance.

More specifically, regarding the northern ramification of the 'Khorasan/Royal Highway,' significant information is provided by Ibn al-Faqīh and Mustawfī,[67] who link King Kawād I with the founding of the chief city of Shahrazur, also reporting its Persian name as Nīm-az-rāh, 'Midway,' due to its location halfway between Ctesiphon and the fire temple of Ādur-Gušnāsp/Shiz.[68]

This information is consistent with the development of the Ādur-Gušnāsp temple from the reign of Kawād onward. The chronological range of coins, sealings, and refined materials from the site of this fire temple indicates that substantial structural improvements began during Kawād I's reign.[69] Literary sources frequently describe the royal favor and devotion bestowed upon this shrine, at least from the reign of Wahrām V Gōr (421–439 CE), especially following military triumphs and coronation celebrations.[70] According to Muslim authors, newly crowned kings of this dynasty (Ar. *kasraw*) traveled from Ctesiphon to Ādur-Gušnāsp/Shiz via Nīmrāh/Nīm-az-rāh in Shahrazur (Fig. 5.6).[71] It is plausible that these sources reflect a customary tradition followed during the late Sasanian period. In this framework, new foundations, spanning from the middle course of the Diyala to the Shahrazur plain, aimed to enhance the northern branch of the royal route and improve the intermediary stages connecting these two densely populated regions.[72]

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[64] Gyselen 2019, 237–238, 109–110.

[65] Morony 1984, 128.

[66] On the growing relevance of Ctesiphon, see e.g. Yaʿqubi (Hoyland 2018, 132) and the recent overview in Shenkar 2018. Ibn al-Faqīh emphasizes Kawād I's role in the development of the city and its surrounding areas (Massé 1973, 253, 256). Similarly, Dīnawarī references Kawād's administrative reorganization of various regions of the Sawād (Bosworth 1999, 138, n. 355).

[67] Schwarz 1926, 698; Minorsky, Bosworth 1997, 218.

[68] The precise localization of this city remains unknown. For an overview of the various hypotheses, see Rawlinson 1840, 101–102; Hoffmann 1880, 254–256; Schwarz 1926, 699; Safar 1974; Minorsky 1955, 83–86; Minorsky, Bosworth 1997; Altaweel *et al.* 2012, 15–16; Cereti *et al.* 2015, 274, n. 37. The first attempt to identify the site, as far as we know, was made by the British Resident in Baghdad, James Rich, who, during his 1820 stay in Sulaimaniyah, inquired about the location of the old Shahrazur city from the local Pasha and his entourage. The Kurdish nobles suggested that the remains were at Kiz Kalassi (the 'Maiden's Castle'), near the modern village of Bestansur (Rich 1836 I, 269; Schwarz 1926, 702). At that time, local inhabitants preserved a folk story about Kiz Kalassi being founded by Alexander the Great.

[69] Schippmann 1971, 352; Boucharlat 2015, 25–26.

[70] Schippmann 1971, 315–325; Boyce 1985.

The excavations led by Alexander Tamm at Gird-i Kazhaw in Shahrazur are of particular interest to the present study.[73] The site is located near the village of Bestansur, south of the city of Arbat in Sulaimani province, and is characterized by two artificial mounds and a water spring. The team from the Ludwig-Maximilians-Universität of Munich identified a late-Sasanian fortress and a monumental building with pillars at the site. Gird-i Kazhaw likely played a significant role in managing the Shahrazur plain's water system, controlling one of the largest springs in the entire plain.[74] Additionally, it controlled a major crossroads connecting the plain to its north-western access toward the city of Karka d-Beth Slok (modern-day Kirkuk) and, via Sitak Valley, the mountain passes leading to Ādurbādagān.[75] Although isolated, the discovery of a coin from Kawād I at the site's fortress fits with the data presented in this paper and further suggests increasing Sasanian involvement in this macro-region during the early sixth century.[76] The lack of substantial dwellings at Gird-i Kazhaw indicates that the fortress and the adjacent complex may have served as infrastructure for a larger urban settlement, possibly the nearby Yasin Tepe.[77]

5.9. Conclusive remarks

The data collected suggests that the contiguous areas of the central Diyala basin and the intramountain plain of Shahrazur gained increasing importance during the reign of Kawād I. This period marks a pivotal moment in the progressive centralization of Sasanian governance and the establishment of a cohesive territorial strategy. With Ctesiphon designated as the epicenter of this effort, the development of its hinterland and the reorganization of regional connectivity became key objectives. In this context, the establishment of the Ērān-āsān-kard-Kawād province likely played a significant role in enhancing logistical infrastructure and connectivity along the northern branch of the 'Khorasan/Royal Highway', stretching from its junction with the main road near Qasr-e Shirin to the lower districts of Shahrazur/Syārazūr.

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[71] For the royal pilgrimage, see Masʿūdī (HOYLAND 2018, 91–92) and Ibn Khordādhbeh (DE GOEJE 1889, 15, 91); See also Procopius of Caesarea (SCHIPPMANN 1971, 315) regarding Husraw I's journey from Āsōrestān (Assyria) to the same fire temple.

[72] For settlements patterns in the Sharazur plain, see ALTAWEEL *et al.* 2012.

[73] TAMM *et al.* 2018; TAMM 2020.

[74] TAMM *et al.* 2018, 94. On the ancient hydraulic and irrigation systems in the Shahrazur plain, see MÜHL *et al.* 2018.

[75] See also TAMM, HADDAD 2019. For Sasanian evidence in Sitak Valley (Tell Sitak), see SABER *et al.* 2014.

[76] TAMM *et al.* 2018, 112, Abb. 24. For Kawād I's coinage, see SCHINDEL 2004, 352–385, 378–441.

[77] TAMM *et al.* 2018, 140, and previous surveys identified a system of satellite sites surrounding Yasin Tepe (ALTAWEEL *et al.* 2012, 27). For the site of Yasin Tepe, refer to the work by G. Maresca and J. Bruno in this volume.

In conclusion, the analysis of the Slemani Museum material, coupled with a comparison of the available sources, offers valuable insights into the broader processes of late-Sasanian state transformation. It is hoped that the multidisciplinary collaboration with Kurdish institutions and other international archaeological teams working in the region will illuminate many of these unresolved aspects.

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PARTE II

Bologna research unit

The dynamics of human settlement in the historical period in central-southern Fars, from Firuzabad to the Persian Gulf

Edited by Paolo Severi

6. The Dynamics of Human Settlement in Historical Times in South-Central Fars, from Firuzabad to the Persian Gulf: First Results of a New Research Project

Pierfrancesco Callieri

Abstract

The contribution of the coordinator of the research unit of the University of Bologna, campus of Ravenna, provides an overview of the project, both in its initial formulation and in its actual development and results. An administrative complaint, the pandemic, and finally the refusal of the Iranian government to continue cultural relations with a Europe that uncritically endorsed the positions of support for those who were demonstrating against the government of the Islamic Republic even when the demonstrations took on the tones of a violent guerrilla warfare, instigated by foreign agitators. The non-issuance of entry visas to Iran as of autumn 2022 greatly limited the conduct of the research programme, which included a major field activity by the Italian team. These activities, however, were carried out by the Iranian team alone, to whom we owe a positive balance, also taking into account the absence from this volume of the contributions of Dietrich Huff, Ali Eghra, Kourosh Mohammadkhani, and Aleksander Engeskaug, who had also participated with extremely interesting papers at the conference organised in 2023 by the Turin Unit. The topics dealt with in the project were further developed and were partly incorporated into the ongoing PRIN 2022 project.

Keywords

Southern Fars, Firuzabad, Persian Gulf, Roads, Settlements.

The involvement of the Iranian-Italian Joint Archaeological Mission, which has been active in the Persepolis area since 2008 until today, in a project having a chronological focus on the Sasanian period came about as a result of an invitation from professor Alireza Askari Chaverdi of Shiraz University, Iranian co-director of the Joint Mission, who also is the director of the Firuzabad base, one of the three archaeological sites of the Sasanian period that are included within the multiple UNESCO World Heritage site "Sassanid Archaeological Landscape of Fars (SALF)". P. Callieri, the Italian co-director of the Joint Mission, has been part since 2017 of the Iranian team that followed the presentation to the ICOMOS committee of the proposal for the inscription of the site in the UNESCO World Heritage List, at the invitation of the then Deputy for Cultural Heritage, Dr Mohammad Hassan Talebian, until the convention held in Bahrain in the summer of 2018 which concluded with a favourable opinion of the assembly.

In order to approach the most important scientific issues regarding the Sasanian development in Fars, a proposal of the research unit of the University of Bologna was included in the PRIN 2017 project,[1] actually advertised in the spring of 2018, coordinated by the research unit of Sapienza University of Rome; at the same time, the study of the Sasanian period in the area from Firuzabad to the Persian Gulf was introduced as a part of the program of activities foreseen in the MoU 2019-2023 between the RICHT and the Department of Cultural Heritage of the University of Bologna and the ISMEO, presented in the summer of 2018 under the name "From Firuzabad to the Persian Gulf. Multidisciplinary investigations on the Sasanian period".

As a preliminary remark, this Iranian-Italian proposal has taken into account the possible start of other projects in the field of geophysics, geomorphology and archaeology: the one which was to be proposed by an Iranian-French Mission (Prof. Nicholas Faucherre, Dr M. Jamali) concerning field activities including excavations within the walled perimeter of Shahr-e Gur (AMIDEX), as well as the participation of the Iranian-French Mission (Dr S. Gondet, Dr K. Mohammadkhani) concerning geophysical surveys in the Firuzabad plain as well as the study of water adduction to the town. It has also enjoyed the collaboration of Dr M. Jamali (IMBE, Aix-Marseille) for palaeoenvironmental research and of Dr M. Naderi Beni (INIOAS) for marine geology and geophysics.

6.1. Research aims of the PRIN 2017 project and state of the art

The project for field work of the Iranian-Italian Joint Archaeological Mission which was initially conceived to be incorporated in the PRIN 2017 project of the University of Bologna research unit concerns human settlement in the plain of Firuzabad and extends its scope to its connection with the Persian Gulf, particularly the area of Nâyband-Gâvbandi where Prof. Askari Chaverdi in 2018 has started new field activities. This study promised new light on the dynamics of human settlement in the concerned area in a diachronic perspective, highlighting the relationships between inhabitants, territorial policies and communication routes – both local and macroregional – through the centuries, with a special attention for the Early Sasanian period.[2]

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[1] The article is contributed in the frame of the Research Project of National Interest – PRIN 2017 (no. 2017PR34CS) entitled "Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan", with the unit of Sapienza University of Rome directed by Prof. Carlo Cereti as national leader and the unit of the University of Turin directed by Prof. Vito Messina as third component unit. The commitment of the research unit of the University of Bologna in the PRIN project focused on the theme: "The dynamics of human settlement in the historical period in central-southern Fars, from Firuzabad to the Persian Gulf".

[2] FRYE 1983; DARYAEE 2009.

A few specific research subjects represent a priority for research on the Early Sasanian period. The first one aiming at investigating the ancient water management in the Firuzabad plain, i.e. hydraulic structures bringing water to the city of Shahr-e Gur (Ardaxšīr-Xwarrah), and at verifying the historical sources on king Ardashir I's active role in water management for the foundation of the circular city and the farming development of its surrounding territory[3] was already in the programs of the Iranian-French team.

The second research objective was to verify the actual layout of the areas of the city of Shahr-e Gur within the defensive wall and to explain the nature of the lines that draw the characteristic internal subdivision of radial sectors and concentric bands visible from above.

The third research subject concerned connectivity between the Iranian highland and the Persian Gulf. It started from the study of the city gates and the road accesses to Ardaxšīr-Xwarrah in the Firuzabad plain[4] and in a wider approach aimed at identifying the specific road connections of this city with the Persian Gulf as well as the possible harbours used during the Early Sasanian period in this area of Fars.[5]

The Early Islamic Arabo-Persian written sources, which illustrate Ardashir's commitment in the foundation of Ardaxšīr-Xwarrah, also provide indications of the king's early engagement in the coastal area of Fars which led to political control over the entire Persian Gulf.[6] On those sources, we read that Ardashir engaged himself in a fight with the lord of the coastal areas of Fars and Kerman. The name of this powerful enemy that Ardashir had to fight appears in Tabari (817, 5) with different readings. C.E. Bosworth transliterates "ʾ.b.t.n.b.w.d." and interprets "(Haftānbūkht ?)",[7] but a different reading is Āsūwar or Iswer.[8] The *Kārnāmag ī Ardaxšīr ī Pābagān* attributes the sovereignty over this shore of the Persian Gulf to Haftowād,[9] the Lord of the Worm whose residence was in the domain of Gulār, in the region of Gulārān: one of his seven sons lived in the region of Ērahistān and there he had gathered an army of soldiers from Arabia (Tāzīgān) and Oman (Mēzūnīgān). After initial defeat at Gulār, Ardashir launched an attack on the castle of Haftowād, but was again driven back by the fierce resistance. Only the Glory of the Kavis (*xwarrah ī Kayān*) helped him over this difficult situation and he stopped for the night in a village called Mānd – a name which also indicates one the main rivers of southern Fars, flowing from Firuzabad. With the help of two loyal Zoroastrian brothers from this village, Ardashir finally succeeded in overthrowing Haftowād and imposing his power over the Persian Gulf. Behind the legendary aspects of this episode lie a number of historical facts upon which we cannot dwell here. However, it does imply that the location of the ancient itineraries between Ardaxšīr-Xwarrah and the Persian

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[3] Huff 2008; 2014.

[4] Huff 2008; 2014.

[5] Tomaschek 1890; Berthelot 1935; Callieri 2021.

[6] Miri 2012; Piacentini Fiorani 1985.

[7] Bosworth 1999, 10; Shaki 2002.

[8] Barth, Nöldeke 1881–1882, 817, n. b).

[9] Grenet 2003, 32–34, 124.

Gulf holds a great importance for closer definition of Ardashir's territorial interest in the extensive and varied coastal areas.

The appropriateness of the choice of directing a project centred on the Early Sasanian period from Ardaxšīr-Xwarrah to the Persian Gulf becomes clear thanks to a series of historical considerations.[10]

The extensive surface surveys which Andrew Williamson carried out in Fars (at the time extended administratively to the sea) between 1968 and 1971 mainly concerned the coastal areas, in a long stretch of the North-Eastern coast of the Persian Gulf, from Bushehr to Jâsk. The untimely death of the researcher left a vast collection of pottery unprocessed, which since 2001 is the object of the Williamson Collection Project, launched at the University of Durham.[11] Most of this material, however, belongs to Middle to Late Sasanian and Islamic ages.

The archaeological site of Sirâf at modern Bandar Tâheri, which still represents the main excavated site in the coastal area, is often mentioned as the port of the Sasanians in the southern stretch of the Persian Gulf, whereas Bushehr area and especially Rev Ardashir were the main landing in the northernmost stretch.[12] However the role of Sirâf for the Early Sasanian period needs to be reconsidered in the light of Seth Priestman's assertion, based on his study of pottery from the excavations, of the fact that the date of ceramic material is very close to the beginning of the Islamic era or at the earliest the 5th–6th century AD[13] and in view of the results of new Iranian excavations which have not found levels of clear Sasanian age.[14] It is therefore important to carry out a new study of the Persian Gulf coast that takes into account on one side the available archaeological evidence critically approached, since the excavations in Sirâf that have demonstrated that this port did not exist at the Early Sasanian age,[15] and on the other the morphological characteristics of the coast in order to identify suitable landing places. For this second and fundamental issue, two non-archaeological aspects must be kept in mind: the reconstruction of the ancient coastline on which the geomorphological investigations by A. Sembroni are giving new light[16], and the technical characteristics of the ancient seafaring, which D.M. Mezzapelle, archaeologist and sailor, guarantees (see below). With these two contributions, we have pinpointed the areas where to carry out surface surveys in search of coastal settlements from the Sasanian period, especially Early Sasanian ones if there is a possibility to single them out.

But there is a second aim that animates the project. As it has also been stressed by other authors,[17] the need is felt for study of the connections between the Persian Gulf and the plateau. These are two areas of a very different environmental nature but with no clear-cut boundary between hot (*garmsir)* and temperate (*mo'tadel*) regions: the orographic configuration of Fars sees in the hinterland region of the Persian Gulf a series of parallel valleys at progressively higher levels, extending from the coast to the central plateau and sharing features of both areas.

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[10] CALLIERI 2021.

[11] PRIESTMAN 2003, 345–348.

[12] TOFIGHIAN 2014.

[13] PRIESTMAN 2005; 2013, 22, 154; KHAKZAD *et al*. 2015, 1–2.

[14] TOFIGHIAN 2014; ESMA'ILI JELODAR 2015; KHOSROWZADEH 2015.

[15] PRIESTMAN 2005.

[16] SEMBRONI *et al*. 2024a; SEMBRONI *et al*. 2024b.

[17] ASADI *et al*. 2013, 23–24.

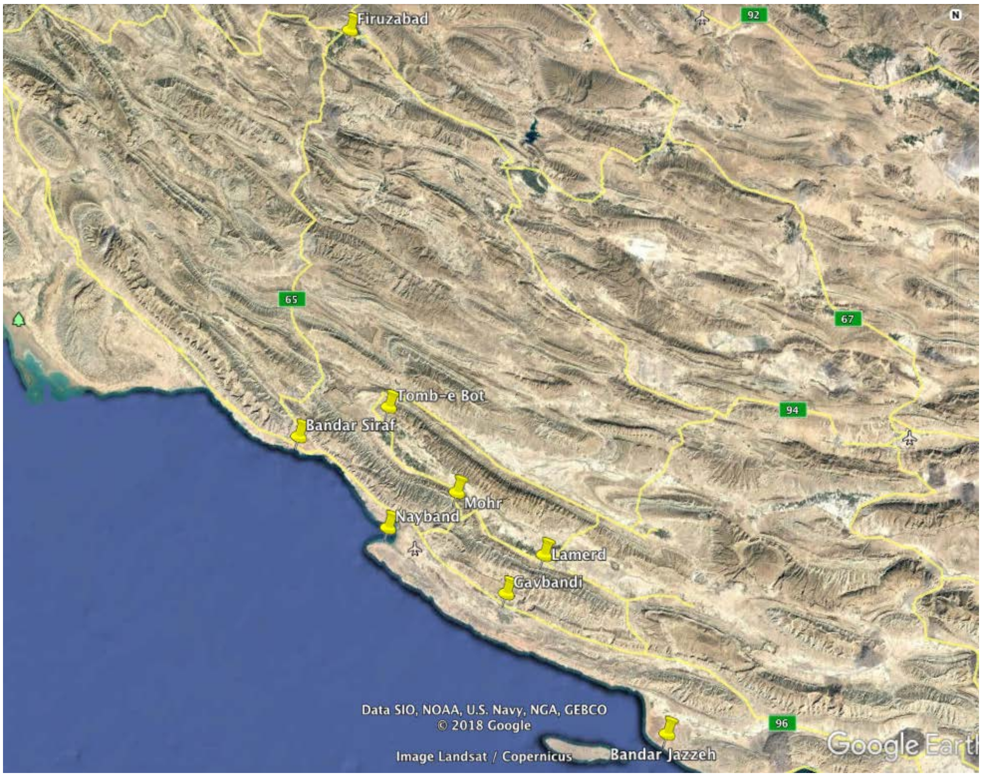

Fig. 6.1. The geographical area of the project (source Google Earth).

In the *Kārnāmag ī Ardaxšīr ī Pābagān* we see that Ardashir moved with relative ease between Estakhr, Ardaxšīr-Xwarrah and the areas nearer to the Persian Gulf, including Ērahistān and Gulār. According to Grenet, Ērahistān should correspond to the valley of Mohr and Lâmerd districts (Fig. 6.1), which are only separated from the Persian Gulf by a mountain ridge, and which share several features with the coastal region, beginning with climate.[18] As for Gulār, Grenet suggests, probably on the basis of etymology, that it should correspond to the present village of Gelâr, 54 km west of Guyom, a few dozen kilometres to the North of Shiraz,[19] but this identification is contradicted by the fact that after the second unsuccessful attack on the castle at Gulār, "Ardashir found himself alone on the sea shore" (*Ardaxšīr xwad tanīhā ō bār ī drayā ōbast*, VIII, 6). Thus, it seems more reasonable to accept the location of Gulār on the coast near to the eastern boundary of Fars as well as its identification proposed by N. Miri with the town of Kujārān-Ardaxšir mentioned by the medieval Islamic sources as one of the cities founded by the first Sasanian king.[20] Williamson and Whitehouse mention that Hamzah al-Esfahani also named Kujārān-Ardaxšir as a town founded by Ardashir I, but give no exact reference to any of Hamza's four works still extant.[21] In 1972, B. de Cardi suggested locating Kujārān-Ardaxšir on the coast of the area of Bandar-e Lengeh.[22] But according to M.B. Vosoughi the name of medieval city of Korān should be a variant spelling of Kujārān, on the evidence of the ethnonym of Kārāni appearing on two tombstone inscriptions in a cemetery near Galehdar, not far from Tomb-e Bot.[23]

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[18] Grenet 2003, fig. 2.

[19] Grenet 2003, 124.

[20] Asha 1999, 42–43; Miri 2012, 126.

The discovery in this area by A. Askari Chaverdi, at the site of Tomb-e Bot, of extremely interesting architectural elements of Achaemenian type but of inferior workmanship can be interpreted anew on the basis of a comprehensive approach to Ardashir's policy in the Persian Gulf area. As I proposed at the Kiel congress, the Tomb-e Bot Achaemenidizing architectural elements find their best chronological attribution in Ardashir's period, on the evidence of the presence of Achaemenid features also observed at Firuzabad. Tomb-e Bot thus results one of the key-sites of our project and is also illustrated in Askari Chaverdi's paper in this volume.

The Galehdar division, an area surveyed by Sir Aurel Stein (1937), H. Gaube (1980) and more recently A. Askari Chaverdi (2013),[24] belongs to the Mohr valley. The latter is separated from the Sirâf area by a ridge of mountains reaching 1,500 m: crossing the ridge, as undertaken by Stein in 1933, ending north of the Galehdar village, proved particularly difficult. Stein saw traces of an old road and was convinced that "this route, difficult as it must always have been, had been in regular use for the traffic which once was carried on between the emporium of Siraf and the old trading centres of Iran".[25] However, the only natural passages from Mohr valley towards the Persian Gulf presenting less difficulty lie further south and link the Mohr valley with the region of Gâvbandi, present Parsiân, ending to the West on the gulf of Nâyband (Fig. 6.1).[26]

As for the Gâvbandi valley,[27] A. Askari Chaverdi has recently started excavations of stratigraphic trenches at the site of Tol-e Pargu, near the city of Parsiân,[28] which will also be illustrated in his paper. According to W. Tomaschek, the area is crossed by the river Nâband-rôd, which he identifies with the *Bagràdas potamòs* of Nearchos or with the *flumen Hyperis/Syperis in medio sinu Persico, onerarium navium capax* mentioned by Onesicritus in Juba.[29]

The large bay of Nâyband, an area of recognised anchoring capacities,[30] is formed by the promontory bearing the same name, which Tomaschek identifies as the *promunturium Themisteas* mentioned by Pliny the Elder (§ 110), and had the port of

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[21] Williamson 1973, 32; Whitehouse *et al.* 2013.

[22] de Cardi 1972, 306.

[23] Vosoughi 2012.

[24] Stein 1937; Gaube 1980; Askari Chaverdi 2013.

[25] Stein 1937, 213.

[26] Hausleiter *et al.* 2000; Motarjem 1998; Asadi *et al.* 2013; Askari Chaverdi 2018.

[27] Williamson 1969–1970, 231.

[28] Askari Chaverdi 2018.

[29] Tomaschek 1890, 56–57.

[30] Toufighian 2014.

Bandar Bedikhân on its northern shore in 19th century: the latter is likely to have been absorbed by the new oil terminals of Asaluyeh.[31]

The importance of Mohr-Lamerd and Gâvbandi areas in the early Sasanian period offers evidence of one of the possible areas of Ardashir's intervention on the Persian Gulf, namely the stretch extending eastwards from Sirâf. It is an area which also the *Kārnāmag ī Ardaxšīr ī Pābagān* also associates with the initial warfare of Ardashir, if the location of Ērahistān is confirmed. Our working seems to be verified through the information collected in the coastal area of Nâyband, as the article by D.M. Mezzapelle in this volume shows.

6.2. Executive steps of the PRIN 2017 project

After the first field-work season of the Joint Mission in 2019, before the halt due to the pandemics, the project has been adjusted to the new situation which the start of the PRIN 2017 project and of the activity by the Iranian-French Mission has suggested. Therefore, the archaeological activities in Firuzabad have been limited to the complete documentation of the structures outcropping in the inner circle and in the first adjacent concentric belt in the city of Gur, with a particular interest in the imposing Zoroastrian fire sanctuary known as Takht-e Neshin, and has left the investigation of the hydraulic works in the area of the city and in the plain to the AMIDEX Iranian-French mission.

On the other hand, the PRIN 2017 has taken care of the important task of geophysical prospecting in the inner area of the city of Gur thanks to the collaboration started just in 2019 with Dr Kourosh Mohammadkhani of Shahid Beheshti University in Tehran.

The post-doc fellowship holder activated with funds from the PRIN 2017 project, Dr A. Sembroni, has carried out in the first year the detailed geomorphological study, which offers the guarantee of methodological validity and correctness of the reconstruction of the ancient landscapes and above all of the coastline of the time, which is profoundly different from the current one.[32] It has substantiated the research on the sea routes along the north-east coast of the Persian Gulf, which began with a methodological study on ports and harbours in the ancient world conducted by D.M. Mezzapelle.

The second objective has been the search for new original data deriving from the surface archaeological exploration carried out by the Shiraz University team in the most interesting areas, mainly the Firuzabad plain surrounding the city of Ardaxšīr-Khwarrah, the valleys of the southern districts of Lâmerd and Mohr, and the mentioned stretch of the Persian Gulf coast: the latter was the subject in November 2019 of a short inspection funded with project funds and led by Dr M. Naderi Bani as part of the formalised collaboration with the Iranian National Institute for Oceanography in Tehran.

The set of three reference sites, respectively for the plateau (Firuzabad), for the coastal hinterland (Tomb-e Bot) and for the coast (Tol-e Pargu), allowed the group of Iranian researchers collaborating in the project under the direction of Prof. A. Askari Chaverdi (see below), to start collecting topographical data for the GIS envisaged in the programme and to collect information on the various sites identified in spatial reconnaissance, in the first year limited to the Firuzabad plateau.

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[31] TOMASCHEK 1890, 56.

[32] SEMBRONI *et al*. 2024a; SEMBRONI *et al*. 2024b.

As for Firuzabad, thanks to the five-year agreement with the Research Institute for Cultural Heritage and Tourism of the Islamic Republic of Iran, only the first season of documentation activity, conducted by Prof. Callieri and Mr Ali Eghra', surveyor of the Joint Mission, could be completed. The research aims at the study and documentation of all the structural emergencies of the central area of the city of Ardaxšīr-Khwarrah, today's site of Shahr-e Gur, to be compared with the particular radial 'grid' that aerial photos highlight but that on the ground do not correspond to anything visible.

Of considerable interest for the study of the topography of Ardashir Khwarrah is the research by Aleksander Engeskaug,[33] who has proposed a new interpretation of the passage from *Kār-nāmag ī Ardaxšīr ī Pābagān* (5.13) dedicated to the illustration of the foundation of Ardashir. Unfortunately, due to personal circumstances, his contribution was not ready at the time of closing this volume and will be published later.

The research has successfully contributed to verifying, in a diachronic perspective, the relationship between the territory and the human settlements with the territorial policies and with the communication routes that characterised the different periods examined, from the post-Achaemenid to the proto-Islamic period.

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7. Connectivity Network of Southern Fars before the Arsacid and Sasanian Eras

Emad Matin

Abstract

The paper at hand concerns connectivity in pre-Arsacid Fars and focuses on the Achaemenid royal road that connected the two 'royal residences' of Persepolis and coastal Tamukkan – located in the present-day province of Bushehr. It highlights that coastal Tamukkan, in addition to controlling the coastal region, was responsible for organising overland and maritime travels. This paper attempts to explain the topography of the region and the connection of coastal Tamukkan with the sea mentioned in historical sources using available archaeological and geomorphological data.

Keywords

Achaemenid Fars, Persepolis, Coastal Tamukkan, Persian Gulf.

The Achaemenid Empire played a major role in the development of connectivity within world history.[1] For so long the Empire has been acknowledged for its capacity in road constructions for 'postal' messengers. However, our knowledge about the connectivity in this period has been improved and it is known nowadays that the royal road mentioned by Herodotus – which connected Sardis to Susa – was only part of the imperial royal roads system (Fig. 7.1). Wouter F.M. Henkelman and Bruno Jacobs recently elaborated the discussion on the roads and communication in the Achaemenid period showing that this well-organized network connected different parts of the Empire. On the roads, way stations and fortresses were installed at specific distances and the security of the roads was ensured also by travel guides accompanying groups of travellers. Within the routes, in addition to the messengers, royal family, statesmen, military contingents, merchants, craftsmen and workers travelled throughout the Empire. The travellers on official missions received their rations thanks to government letters at the way stations which were located at one day distance from each other. This system guaranteed the continuity of quick internal connectivity within the Empire which was necessary to control the imperial territory. The existence of secondary routes completed this network.[2]

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[1] I wish to express my gratitude to Pierfrancesco Callieri for having kindly invited me to take part in the Research Project of Italian National Interest – PRIN 2017 (no. 2017PR34CS) entitled 'Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan', with the unit of Sapienza University of Rome directed by Carlo Cereti as national leader and the unit of the University of Turin directed by Vito Messina as third component unit. A due thank you goes to Aboutaleb Sajjadiyan for his precious help with bibliographical references.

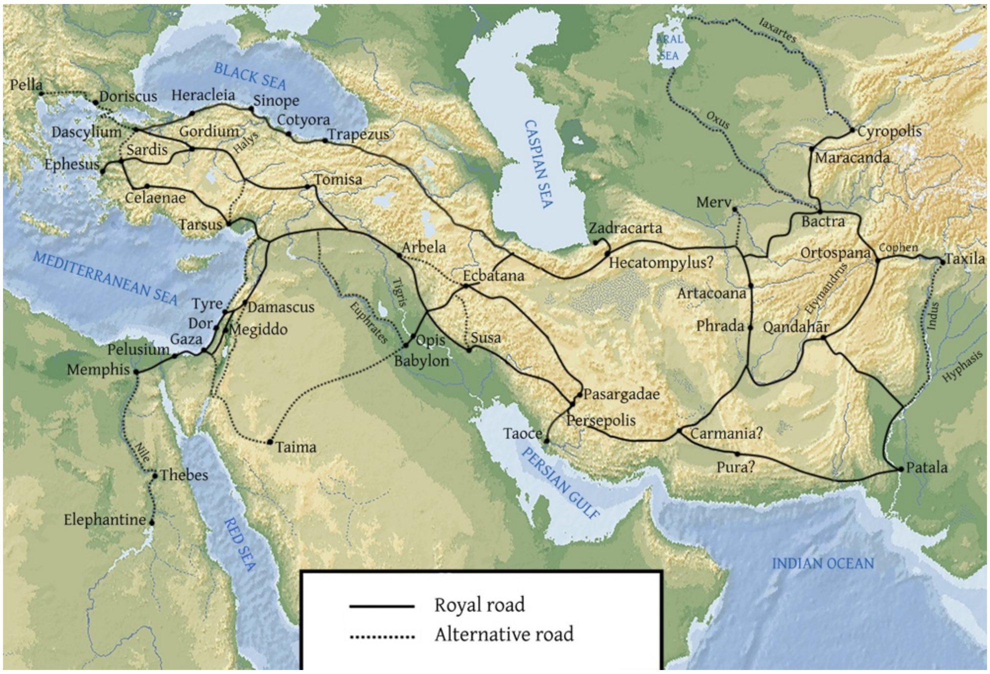
Pella
Doriscus
Heracleia
BLACK SEA
Sinope
Cotyora
Gordium
Halys
Trapezus
Dascylium
Sardis
Ephesus
Tomisa
Celaenae
Tarsus
Arbela
MEDITERRANEAN SEA
Tyre
Damascus
Dor
Megiddo
Gaza
Pelusium
Memphis
Tigris
Euphrates
Opis
Babylon
Susa
Ecbatana
CASPIAN SEA
ARAL SEA
Iaxartes
Oxus
Cyropolis
Maracanda
Merv
Bactra
Zadracarta
Hecatompylus?
Ortospana
Cophen
Taxila
Artacoana
Phrada
Qandahār
Erymandrus
Indus
Hyphasis
Pasargadae
Persepolis
Taoce
PERSIAN GULF
Carmania?
Pura?
Patala
Taima
Nile
Thebes
Elephantine
RED SEA
INDIAN OCEAN
Royal road
Alternative road

Fig. 7.1. Roads in the Achaemenid Empire (After HENKELMAN, JACOBS 2021, fig. 1).

One of the royal roads extended from the Caspian Sea to the Media and Ecbatana region reached Persepolis through western Iran and northern Fars. The main crossing points of this road in Fars were the Kabaš / Gabae in northern Fars,[3] Pasargadae and Persepolis; the royal road continued to south and at the end reached the coastal Tamukkan / Taoke which lies in the Persian Gulf region as also its name implies (Fig. 7.1). These four toponyms are mentioned as 'royal residences' in classical sources.

It may be necessary to highlight that the entire area of interest of this essay lies within the same historical region. In fact, the region referred to as Persia, Pārsa, Persis, Pars or Fars was considerably vaster from the Achaemenid period into Islamic times than the present-day Fars Province. In the Achaemenid period the region comprised also parts of the provinces of Isfahan, Yazd, Kerman, Khuzestan and Bushehr.[4] The latter has been separated from Fars region in the modern division of Iranian provinces. Both Achaemenid Fars and its main administrative centre, i.e. Persepolis, was called by the same name "Pārsa". In Achaemenid Fars, there were several administrative centres of different levels. Three 'royal residences' of Kabaš, Pasargadae and coastal Tamukkan, were actually Achaemenid Fars royal centres comprised of particular administrative structures developed by royal sovereignty. All of these administrative centres functioned under the control of the Persepolis institutions.[5]

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[2] HENKELMAN, JACOBS 2021; on connectivity in the Achaemenid era see also COLBURN 2013.

[3] Probably in the area near Izadkhast and Abadeh.

[4] HENKELMAN 2012, 931; MATIN 2023, 196.

This paper focuses on the connection between the royal residences of Persepolis and the coastal Tamukkan – and in particular on the function of the latter. New historical and archaeological investigations showed that the construction of these two 'royal residences' which had begun during the earliest Achaemenid kings, was still under the process of being developed under Darius I.[6] Recently, Daniel T. Potts, studying the 19th and early 20th centuries travellers' notes – and other resources – has provided very interesting information on the logistical aspects and travel condition between Bushehr and central Fars (Fig. 7.2).[7] The present essay focuses instead on the role of coastal Tamukkan in maritime and overland connectivity.

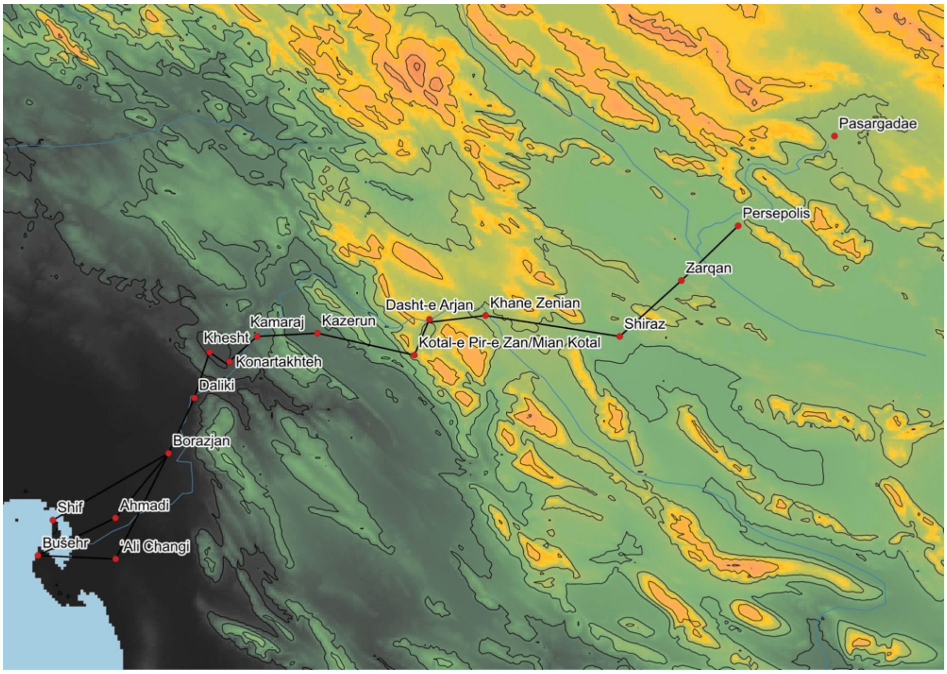

Fig. 7.2. Map of the main halts on the route between Bushehr and central Fars (After Potts 2022, fig. 1, drawing by Andrea Squitieri).

Persepolis is located in Fars highlands, about 55 km northeast of Shiraz and east of the Marvdasht Plain (Figs. 7.1–7.2). The lesser known coastal Tamukkan is located by historians in the Dashtestan Plain (or Borazjan Plain) and near the city of Borazjan located in the present-day Bushehr Province (Figs. 7.1–7.2). Its distance to the Persian Gulf coast and Bushehr port – the current provincial capital – is some 50 and 60 km respectively. Dashtestan is a fertile territory, where two rivers, Dalaki and Shapur, join and give birth to the perennial Hilleh river.

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[5] Henkelman 2008, 308, 313; 2012, 939; 2013, 535; 2017, 143.

[6] Tolini 2008; Henkelman 2017, 135–137; Matin 2018; Askari Chaverdi, Callieri 2020; Gondet, Boucharlat 2023; Colliva, Matin 2023.

[7] Potts 2022; see also Potts 2023.

More than 30 sites belonging to Achaemenid or (post-)Achaemenid horizon have been reported in the Dashtestan Plain and numerous buildings of possible (post-)Achaemenid nature have been reported from the area between the Dalaki and Shapur rivers (Fig. 7.3).[8] The most significant archaeological relics of the Achaemenid era in Dashtestan (and in the whole Persian Gulf region) are three royal-official palatial monuments, commonly known as the 'Borazjan Palaces' – one of which includes also an imperial relief and inscription.[9] Although the limits of coastal Tamukkan are not clear yet, I have recently proposed that the Achaemenid buildings and sites in the area – where historians locate the coastal Tamukkan – were parts of a settlement built according to Achaemenid "diffuse urbanism" exactly like those discovered in Persepolis and Pasargadae.[10]

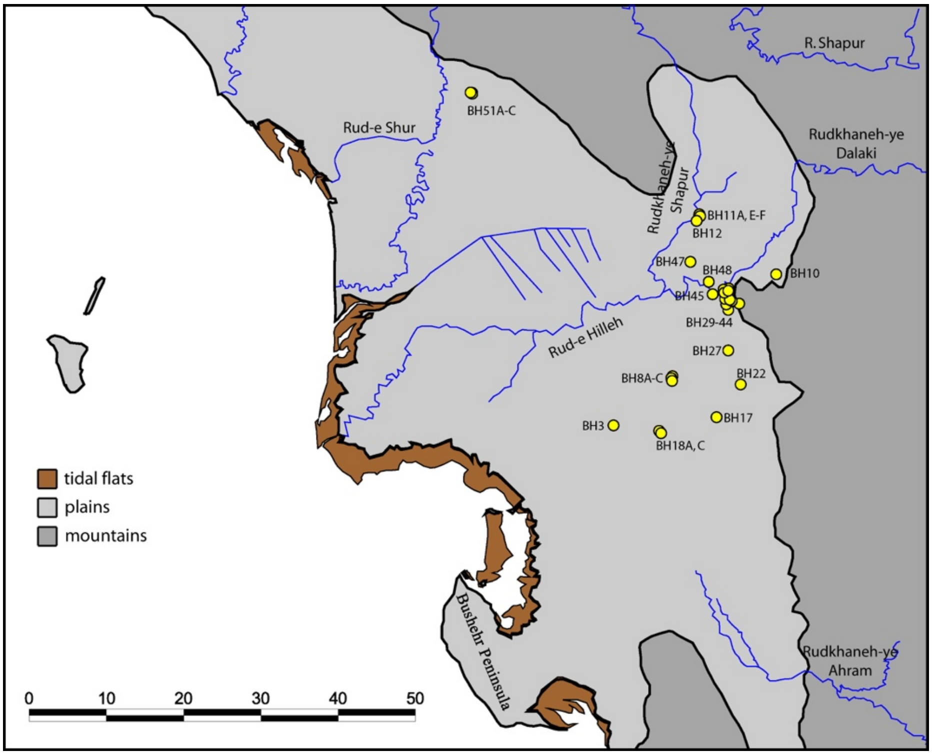
R. Shapur
Rudkhaneh-ye Dalaki
Rud-e Shur
BH51A-C
Rudkhaneh-ye Shapur
BH11A, E-F
BH12
BH47
BH48
BH10
BH45
BH29-44
Rud-e Hilleh
BH27
BH8A-C
BH22
BH17
BH3
BH18A, C
tidal flats
plains
mountains
Bushehr Peninsula
Rudkhaneh-ye Ahram
0
10
20
30
40
50

Fig. 7.3. Distribution of (post-)Achaemenid sites recorded during the survey of the joint Iranian-British mission (After Carter *et al.* 2006, fig. 5).

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[8] Carter *et al.* 2006, 94–96; Yaghmaee 2018a, 27, 196–246; 2018b, 103; Mohammadkhani *et al.* 2020, 1127–1128.

[9] See Matin 2020, 336–340, 356–357; Zehbari 2020 with references. For the new excavations of Achaemenid context in the area see Ebrahimi 2020.

[10] Matin 2020.

Wouter F.M. Henkelman has well exhibited the significant role of the administrative centre of coastal Tamukkan, which controlled the whole coastal region. Elamite sources assert that coastal Tamukkan was located on one of the borders of the area under the control of the administrative and economic institutions of Persepolis; in other words, it was in close contact but not run under the overall auspices of the Persepolis administration. This proves that it was headquarter and administrative centre of a sub-satrapal division or province and probably had economic, military and logistic authority and hosted institutions such as regional treasury and archive which were necessary to organize the entire sub-satrapal zone.[11] Not only the connectivity between Persepolis and Tamukkan was ensured by the administrations of these two 'royal residences', but the latter provided also access to the Persian Gulf.

On the basis of archaeological evidence, it has been suggested that the Persian Gulf should be seen as a "lac achéménide"[12] and that the southern coast of the Persian Gulf should be added to the maps of the Achaemenid Empire.[13] The Achaemenids who managed to create such a connectivity thanks to well-organized and quick overland network between the various regions of their Empire (see above) definitely needed to communicate with the satrapies located on the southern coasts of the Persian Gulf via maritime traveling.

The foundation of coastal Tamukkan was arguably propelled by the strategic importance of the coastal region.[14] The Babylonian and Elamite archives evidence that coastal Tamukkan being the southern settlement on the abovementioned royal road, was the place where the maritime journey began or ended and marked the beginning of the Empire's territory toward the Persian Gulf.[15] Historical sources record the transport of various individuals and goods from southern Mesopotamia across the Euphrates and Persian Gulf to the coastal Tamukkan.[16] This maritime route was so important that it has been assumed that reaching Persepolis via coastal Tamukkan might be a faster alternative to travelling entirely overland from Babylon to Persepolis.[17]

Coastal Tamukkan served to control and manage not only the northern coastal region, but at least the part of the Persian Gulf. In other words, it was not only responsible for the communication from the Persian Gulf to Persepolis, but a considerable number of official maritime journeys beginning from the northern shores of the Persian Gulf had to be organized from this 'royal residence' administrative centre. It should be highlighted that the Persepolis administrative archives registered a large number of official mission's travels but none of them deals directly with maritime journeys. A small group of texts deals with land journeys of numerous maritime personnel, implying that the maritime journeys of these groups must have been organised subsequently by another administrative centre close to the sea coast, such as coastal Tamukkan.[18]

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[11] HENKELMAN 2008; 2013, 535.

[12] SALLES 1992, 81.

[13] BRIANT 2002, 760–762, 1028–1029; CALLIERI 2021.

[14] BRIANT 1996, 780; 2002, 760–761.

[15] COOK 1985, 251, fn. 2; DE BLOIS 1989, 160; TOLINI 2008; HENKELMAN 2017, 278.

[16] TOLINI 2008.

[17] JOANNÈS 2020, 80; *contra* POTTS 2022, 24–27.

Historical sources explain how coastal Tamukkan and the Persian Gulf were linked despite their distance. Arrian, reporting the observations of Nearchus in the area in 324 BCE, provided us with valuable information about the coastal region:

> "Thence they started and reached the city of Hieratis, a populous place. The voyage was of seven hundred and fifty stades; and they anchored in a channel running from the river to the sea and called Heratemis. At sunrise they sailed along the coast to a torrent called Padagrus; the entire district forms a peninsula. There were many gardens, and all sorts of fruit trees were growing there; the name of the place was Mesambria. From Mesambria they sailed and after a voyage of about two hundred stades anchored at Taoke on the river Granis. Inland from here was a Persian royal residence, about two hundred stades from the mouth of the river."[19]

As is always the case with classical historians, one cannot be certain about the specific details of their texts, but Arrian's description is very helpful in reconstructing the topography, environment and connectivity in the coastal region in its general outline. In his words, it was connected to the Persian Gulf through a canal called Heratemis. In the past attempts have been made to reconstruct the canal using aerial photography,[20] but fieldwork has not confirmed the hypothesis.[21] The Granis might be the same as Hilleh River. However, the course of the river has been changed several times in the past and the modern course is maintained by human intervention.[22]

Hieratis appears to be a populated port city and Mesambria may correspond to the Bushehr peninsula (Fig. 7.3) – although it is not sure. Two areas at the southern tip of the Bushehr peninsula have been generally dated from the "Achaemenid to Sasanian" period – based on the surface sherds studies –,[23] but so far, no specific port or landing of the Achaemenid period has been reported. It should be considered that the Bushehr peninsula is connected to the mainland by 15 km alluvial mud-flats which would not have existed before the alluviation began: the present peninsula at some time must have been a true island.[24] Daniel T. Potts proposed that the Achaemenid port was perhaps located further north near Shif (Fig. 7.2).[25] However, on the basis of the detected marine deposits, it has been suggested that the sea level may have been higher in the Achaemenid period and, if so, one might look for ports from this period further inland.[26] The fact that the (post-)Achaemenid sites reported in the coastal region are not close to the shores (Fig. 7.3) might support this hypothesis. Interestingly, it has been suggested that the sea level was different in ancient times also in Susiana. The fact that 'Achaemenid' pottery has not been reported during the new multidisciplinary survey of ancient ports on the northern coast of the Persian Gulf may also aid this idea.[27] The question of the location of the Achaemenid port of the coastal region – inside or outside the Bushehr peninsula – remains widely open and further multidisciplinary investigations might declare the port's location.

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[18] HENKELMAN 2020; MATIN 2020, 346; 2023, 223–225.

[19] ARRIAN, *Indica*. 39.3, translation from ILLIF ROBSON 1993.

[20] WHITCOMB 1987.

[21] CARTER *et al*. 2006, 67; PRIESTMAN 2022, 162–163.

[22] CARTER *et al*. 2006, 68.

[23] Both located near the site called Halileh (PRIESTMAN, KENNET 2023, 289).

[24] CARTER *et al*. 2006, 68; PETRIE *et al*. 2005, 68, fig. 13. The Bushehr peninsula however comprises pre-Achaemenid sites including Tol-e Peytul i.e. the Elamite port of Liyan (PÉZARD 1914; SIMPSON 2007, 155).

[25] See POTTS 2022, 17–21; see also NADERI BENI *et al*. 2024, 6–7.

Arrian mentioned also an extensive landscaped area and gardens with "all sort of fruit trees". Both historical and archaeological sources confirm that several gardens were part of the Achaemenid period landscapes and urbanism. The green area mentioned by Arrian, according to the geomorphological condition of the area should be located in the inland. Bushehr peninsula has a rocky nature and saline soil. The adjoining mud-flats and other areas near to the sea are not suitable for agriculture either. The water supplies are limited. Currently the Peninsula receives only 259 mm of rainfall annually and the month of June to September are entirely dry.[28] All this makes extensive cultivation very difficult.

Dashtestan, on the other hand, comprises three rivers and has rich alluvial soil irrigated by a perennial river, i.e. Hilleh (Fig. 7.3). The alluvial soils are cultivable and, although infertile for much of the year, are farmed with rain-fed cereals. The soil of the inland is also much more suitable for the production of ceramic materials compared to that of the shores. Therefore, the Dashtestan Plain is a much more appropriate place for cultivation and the Achaemenid green landscape of the coastal region must have been centred there. The urban zone of coastal Tamukkan and its vicinity must have been landscaped, as it is a typical characteristic of Achaemenid Fars urbanism. It appears to be a parallel model in the modern era that in 1882 a British residence in Bushehr port had a garden house in Borazjan.[29] The Achaemenid gardens, were not in use just as pleasant parks and hunting grounds – as once believed –; rather, served as venues for cultic activities and more importantly they were a place for different activities such as agricultural, animal and human productivity, in addition to storage and warehousing. In other words, they were locations for the production and conservation of food and other goods (including artisanal products).[30] It shows also that the port population depended on agricultural production and supplies provided by inland 'royal residence'.

Wherever its location is, it is clear that Hieratis was in close contact with the coastal Tamukkan. Although this port may have had a minor administration, it certainly functioned under the control of the administrative centre of the coastal region 'royal residence' (see above). Archaeological data attest to the existence of a maritime route linking the coastal region with southern coasts of the Persian Gulf. Numerous typical Achaemenid jars and bowls similar to those found in Persepolis area and Dashtestan have been discovered at the important site of Qalat al-Bahrain.[31] It exhibits that connectivity starting from Persepolis (and northern Fars) extended via coastal Tamukkan to the Bahrain island – and probably other areas located south of the Persian Gulf.

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[26] NADERI BENI *et al.* 2024, 21. Cf. POURKERMAN 2020.

[27] HEYVAERT, BAETEMAN 2007; LOKIER *et al.* 2015.

[28] CARTER *et al.* 2006, 68–69.

[29] See FLOOR 2004; 2011, 25–60.

[30] TUPLIN 2018; HENKELMAN 2021; HENKELMAN, STOLPER 2021.

For travellers arriving from the Persian Gulf, the coastal Tamukkan was a strategic hub, as it was located at the foothills and at the beginning of the difficult road over the Zagros Mountains to Persepolis (Fig. 7.2). Babylonian sources report the stay of Itti-Marduk-balâṭu, a well-known Babylonian businessman, at coastal Tamukkan, who then headed towards Ecbatana.[32] It seems logical to assume that official persons and group travel towards the central Fars were organised by this coastal 'royal residence'.

Coastal Tamukkan was located at the beginning of an overland route towards the Iranian Plateau and a maritime route into the Persian Gulf. It was located in a landscaped area and was connected to the sea by a canal. Thanks to its administrative capacities, it controlled the coastal region and organised official travels. The coastal 'royal residence' thus played a very significant role in the Achaemenid connectivity.

Considering the connection between the coastal area and Persepolis, there are many toponyms that should be located on the map through historical and archaeological studies. Many interdisciplinary investigations are also needed to reconstruct the archaeological and environmental landscape of the present-day Bushehr Province and the connection between the coastal Tamukkan and the Persian Gulf. Many questions are still open on connectivity in the Achaemenid Fars. Future investigations will also show whether and how the connectivity network was changed after the Achaemenid period in present-day Bushehr Province.

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[31] CARTER *et al*. 2006, 95–96; CALLIERI 2021 with references.

[32] His stay, however, could have been long; see TOLINI 2008, 6–8, with references.

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8. Ancient Landings and Harbours in the Light of Navigation Practices: The Case of the Nâyband Gulf Site

Diego Maria Mezzapelle

Abstract

Identifying Arsacid and Sasanian ports along the Iranian coast of the Persian Gulf plays a crucial role in understanding historical settlement dynamics and communication patterns in an area characterised by difficult climate and environmental conditions. Recent archaeological studies have revived research into naval and maritime archaeology, particularly by Iranian teams exploring various regions of the Persian Gulf. As part of these efforts, considerable attention has been paid to the reconstruction of the ancient coastline in an area with geomorphological changes and environmental conditions relevant to port activities. A remarkable inventory of stone anchors along the northern coast of the Persian Gulf highlights the potential importance of Nâyband as a central port, as evidenced by a significantly higher number of anchors compared to other sites, including Sirâf. However, the limited availability of written records from the pre-Islamic period requires comparative analysis with better-documented Mediterranean contexts, particularly in relation to Roman ports. This study aims to identify ancient port areas through a multi-layered approach that combines archaeological finds, analysis of traditional seafaring practices, and modern geophysical surveying techniques, as outlined in the project. By integrating insights from geoarchaeology and advanced surveying methods such as side-scan sonar and multibeam systems, this research should seek to shed light on the dynamics that influence people's decisions when settling coastal areas and exploiting resources. Unfortunately, the worsening of the international political situation has affected the fieldwork of the Italian team in Iran, leading to the cancellation of entire sections of the project and a reduction in the overall results. Nevertheless, this research contributes to the objectives of the PRIN 2017 project by improving our understanding of the settlements from the Arsacid and Sasanian periods. This is also possible thanks to the site's involvement and interactions with the marine environment. The site in the bay of Nâyband, which benefited from A. Sembroni's geomorphological study, serves as an exemplary model for a careful research methodology and highlights the fundamental role of a fully informed approach to the practical aspects of seafaring. This article focuses on the detailed assessments of the maritime activities carried *out at the site and highlights the complex procedures used to determine specific details and draw conclusions.*[1]

Keywords
Connectivity, Seafaring, Climate, Harbours, Underwater archaeology.

8.1. General considerations

Identifying the Arsacid and Sasanian harbours along the Iranian coast of the Persian Gulf can provide important indications for the reconstruction of the dynamics of settlement and communication, given that this area was certainly influenced by difficult climatic and environmental conditions and reduced possibilities of sustaining human presence in certain seasons of the year.[2] In recent decades, important studies on the archaeology of the Persian Gulf[3] have stimulated new research on naval and marine archaeology which have been carried out by Iranian archaeological teams in various areas of the Persian Gulf.[4] A fundamental study for this activity has been the reconstruction of the environment in the period in question, including the ancient coastline.[5] More recently, the study of ports has benefited from a comprehensive inventory of stone anchors found along the Northern Persian Gulf coast,[6] which interestingly underlines the likely important role of the port of Nâyband suggested by a significantly higher number of anchors than at other sites, including Sirâf: and Nâyband is the port on the Gâvbandi plain that our project has chosen for the study of the coastal region. In fact, the Nâyband bay eventually loses its significance, supplanted by the port of Sirâf, which increasingly gains prominence, particularly in the post-Sasanian period. This shift is driven by the need for a more accessible port with greater resources.

However, the scarcity of written sources concerning ports in the area of the Persian Gulf in pre-Islamic period obliges us to take a comparative look also at the ancient situation in the Mediterranean, where research on these areas is more advanced, particularly in Roman archaeology, as the many discoveries of ports and dry docks show.

In order to identify possible ancient harbour areas along the Persian Gulf coastline of the project area, besides the well-known port of Sirâf,[7] together with the processing of the results of the above-mentioned anchors collection, we considered also possible to operate with an experimental criterion by applying the knowledge of traditional seamanship.[8] The art of sailing by traditional means has in fact been handed down from ancient civilizations, mostly orally, to the present day. Every self-respecting sailor who goes to sea recognizes at a glance all the possible pitfalls that a rugged coastline has to offer in relation to the environment and weather conditions. Combining the criteria of modern earth and environmental sciences with the ancient art of sailing will certainly has made it less difficult to achieve the objectives set. The study of landings and ports represents an important contribution to the identification of the Arsacid and Sasanian age settlements along the Iranian coast of the Persian Gulf, because it has partly made possible identifying the dynamics that have allowed man to choose one part of the coast over another in relation to the ever increasing need to exploit the sea and its resources. Instead, it has not been possible to recognize any submerged ports and study their dynamics using the latest techniques and technologies at the service of archaeology, such as the search by means of side scan sonar and multibeam that are able to identify objects on the seabed and in the sand.[9]

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[1] The activities were carried out in the frame of the Research Project of National Interest - PRIN 2017 (no. 2017PR34CS) entitled "Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan", with the unit of Sapienza University of Rome directed by Prof. Carlo Cereti as national leader and the unit of the University of Turin directed by Prof. Vito Messina as third component unit.

[2] GHOBADIAN 2019.

[3] KHOSROWZADEH 2015; TOFIGHIAN 2014.

[4] TOFIGHIAN 2018a; 2018b.

[5] MERCURI *et al.* 2013.

[6] KHAKZAD *et al.* 2020.

[7] WHITEHOUSE 1971; 1974; 2009; KHAKZAD *et al.* 2015; POURKERMAN *et al.* 2018; 2020.

The theme of landings and ports in Antiquity must deal with a vast and complex evolution that has seen an extraordinary transformation, especially during the Roman period, dictated by the ever-increasing need to make commercial and military operations as fast and economical as possible.[10] The important distinction of Roman sources between natural landings (in Latin *plagia*) and ports proper (in Latin *portus*) represented probably a truth also for Iran: in the Mediterranean, only the latter are equipped with service and protection infrastructures, while the former limit themselves to using stretches of coastline whose natural conditions are particularly favourable for sheltering and supplying ships.[11]

We must then consider a series of important factors, certainly linked to geological, geomorphological, and anthropological reasons, which have profoundly modified landings and ports in ancient times. The introduction of geo-archaeology, a discipline that has contributed to filling some of the gaps in the knowledge of these precious testimonies of the relationship between man and the sea, thanks to an accurate study of the various ancient geological stratifications, has allowed to establish the geological framework of the Nâyband bay.

For some years now, the attention of scholars for coastal archaeological sites has been focused both on the purely archaeological aspects, with the reconstruction of the various phases of their urban development, and on those related to the geomorphological evolution of the sites.[12] All archaeological sites near the sea, particularly settlements whether submerged or emerged, as well as ports, are in fact true indicators of the different water levels and positions of the ancient coastline. Several times during the past the sea level has changed due to astronomical, climatic and biological causes during glacial and interglacial periods. In the study of coastal changes, climate variations also play a predominant role in the balance between sea and land. Erosion processes caused by marine action in general, such as transport, dispersion, and deposition of sediments, are phenomena that are closely related to wave motion and wind, and ultimately to climate.

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[8] Cf. the Persian Gulf Pilot in MEDAS 1997; ARNAUD 2014.

[9] TUSA 2010, 188–192.

[10] LUCIANO 2019.

[11] CELDRÁN 1995–1996, 219–228.

[12] GOIRAN, MORHANGE 2003; MARRINER, MORHANGE 2007; MORHANGE *et al.* 2016; POURKERMAN *et al.* 2018.

There are no universal guidelines for interpreting the phenomenon of changing coastlines, and this was considered during archaeological research aiming at the identification of archaeological port areas along the coast.[13] The coastlines are in continuous movement and their evolutions can be identified by very precise instrumental approach based on GIS data management systems, allowing to draw vector lines along the land-sea limits on the basis of maps and orthophotos. These maps and orthophotos are also georeferenced and superimposable, highlighting unequivocally the major changes that have occurred over the wide time scales identified. In this way, coastlines are traced that generate backward and forward surfaces, which can be easily calculated in terms of area and width. The limits of the port areas have also been traced, which often represent important elements of interruption in the littoral sedimentary dynamics and considerable effects of shoreline variation. In our project, the MoU existing with the INIOAS (Iranian National Institute for Oceanography and Atmospheric Sciences), could have provided the possibility to obtain these fundamental data, but was not implemented. Instead, an original geomorphological study has been carried out by A. Sembroni in the area of Gâvbandi- Nâyband. It has indicated that the evolution of the coastline in the bay of Nâyband is caused mainly by tectonic uplift and sea level fluctuations, while the contribution of the Gâvbandi River is negligible. In particular, the reconstruction of the palaeo-coastline contemporary to the beginning of the Sasanian period has shown a lagoon configuration similar to the present day one (Fig. 8.1) which could have favoured the development of port activities.[14]

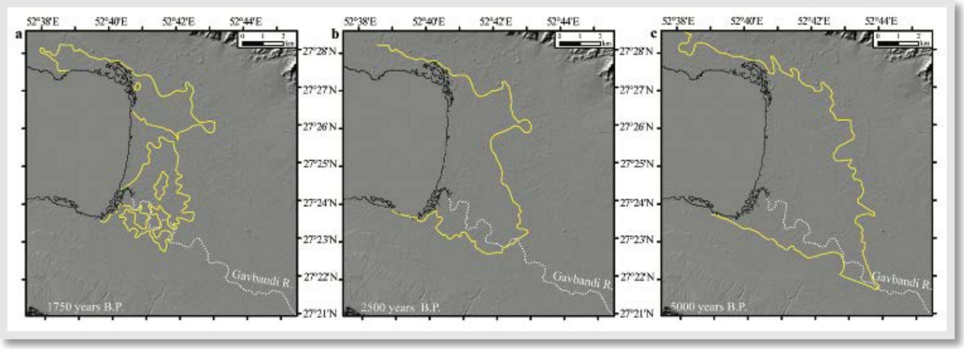

Fig. 8.1. The coastline of the Nâyband bay at various ages. Elaboration by A. Sembroni.

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[13] ANTONIOLI, LEONI 1998.

[14] SEMBRONI *et al*. 2024a; SEMBRONI *et al*. 2024b.

Also, the ancient written sources, if accompanied by a work of exegesis and a philological investigation of the terminology used, have partly made it possible to attempt some comparisons in the field. Even Ancient itineraries can, with caution, provide topographical indications which, if corroborated by Medieval documentation, can solve various problems related to radical changes in ancient port sites. In the operational study of the Persian Gulf coast, all the available data from all the researchers of the project should be used, creating a database that can be shared. In this way the research would bring more significant results.

As is well known, the immense sea that is the Mediterranean brought even the most distant cultures into contact with each other: just think of those of the Near East, who used this waterway to bring commercial products to Mediterranean markets, transmitting their cultures together, as did the Phoenicians, for example, who were extraordinary seafarers. When we think of the Phoenician and Punic civilizations, we observe an astonishing ability to build ports and to choose important shelters for navigation, which allow us to count the Phoenicians and the Carthaginians among the greatest seafaring peoples of all time. The Phoenicians certainly introduced important innovations in port construction methods: the most important port sites of this great civilization are found in Lebanon.[15] Several Greek authors inform us that during the Achaemenid period, Phoenicians provided the Persian Empire with a fleet. The philological investigation of the tradition according to which the Phoenicians originated from the Erythraean Sea, i.e. from the Persian Gulf, allowed G. Garbini[16] not only to understand that the tradition was very likely artificially created by the Phoenicians themselves in order to show the Persians how close they were to them,[17] but also to hypothesize the existence of a Phoenician garrison on the island of Bahrain, ancient Tylos, in the framework of the full Achaemenian control of the Arabian coast of the Persian Gulf, of which P. Callieri produced plausible evidence.[18]

From the Hellenistic period, thanks to Alexander the Great and after the conquest of Egypt by the Romans in 30 BCE, traders started to reach the Mediterranean also through the Red Sea. This led to a very important starting point in the study of routes and settlements in the Indian Ocean and the Persian Gulf.

The study of landing and ports in the Persian Gulf that we have undertaken has a common thread with the ancient civilizations of the Mediterranean basin that pass through the Red Sea and the Indian Ocean. It is not worthy that the environmental research provided by INIOAS was joined to an interpretation of the coast based on seafaring experience.

The study of the navigation of the fleet led by Nearchos in the Persian Gulf[19] has provided important suggestions.

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[15] CARAYON *et al*. 2021.

[16] GARBINI 2002, 47.

[17] Cf. CALLIERI 2013, 127.

[18] CALLIERI 2019, 105; 2021.

[19] Arrian, *Indikè*, Chapters 36–42; cf. MEDAS 2003; 2004, 144–154.

8.2. The Nâyband bay site: an integrated approach to coastal archaeology

The Nâyband bay site, situated along the coastline, presents a compelling case for the application of our innovative methodology (Fig. 8.2). Our approach is anchored in a comprehensive analysis that transcends conventional literature review practices. To accurately identify and characterize ancient coastal sites, it is imperative to develop a detailed understanding of archaeological responses, climatic influences, and the surrounding environmental context. By synthesizing these diverse elements, we can construct a more nuanced and precise depiction of the historical significance and cultural landscape associated with the Nâyband bay site.

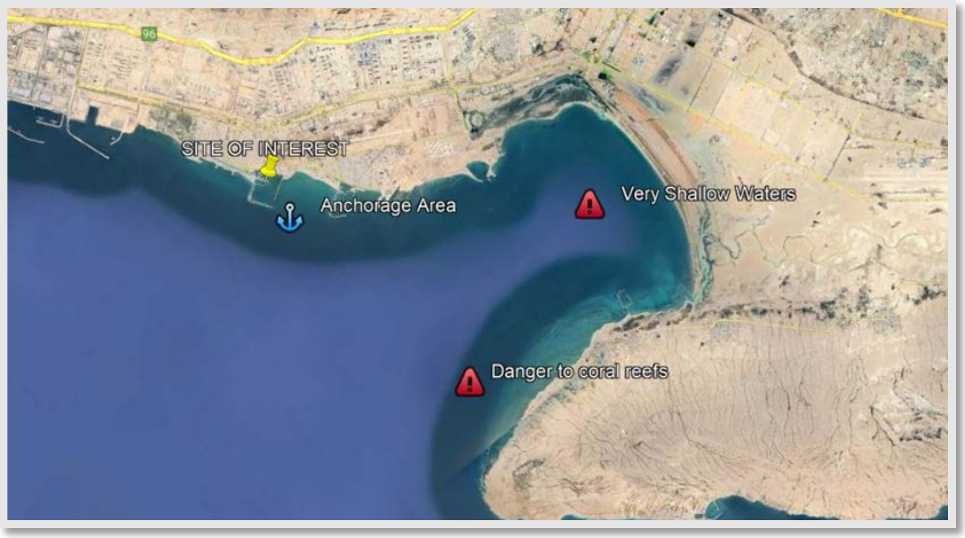

Fig. 8.2. Satellite photo of the Nâyband bay in the present day, source: Google Earth.

A thorough consideration of geological, geomorphological, and anthropological factors that influenced ancient landings and ports is essential. The introduction of geoarchaeology has been pivotal in elucidating the complex relationship between human activities and marine environments. This discipline underscores the importance of studying ancient geological stratifications to prevent misinterpretations and to enhance our understanding of past maritime practices.

Through meticulous evaluations, we have unearthed the intricate layers of history embedded within this coastal locale. By integrating archaeological findings with climatic data and environmental factors, we have constructed a comprehensive narrative of the site's past and its cultural relevance. This study emphasizes the necessity of adopting a multifaceted approach when investigating ancient coastal sites. By encompassing a wide spectrum of information and perspectives, we can reveal new insights and deepen our understanding of these historically significant locations.

The Nâyband bay site stands as a testament to the efficacy of such an integrated methodology, highlighting the need for a thorough and interdisciplinary approach in archaeological research. Every self-respecting sailor, when approaching unfamiliar coasts, meticulously analyses the natural configuration of the shoreline, seeking suitable points for anchorage or shelter from adverse winds and swells.

For a harbour to ensure safety, it must not only possess adequate depth but also offer sufficient protection from the elements. In ancient times, running aground on a wooden vessel could result in the loss of both the ship and its cargo. Even today, as in the past, the depth of the sea is continuously monitored aboard vessels, despite the wealth of cartographic resources available. In antiquity, this depth assessment was conducted through sounding and systematic measurements taken at regular intervals.[20]

Analysing the geographical positioning and prevailing currents and winds across different regions facilitates the identification of favourable landing sites for navigators coming from key locations. In ancient maritime contexts, vessels were typically propelled by square sails, which affected navigation. The nature of the seabed is also crucial; it must be sufficiently deep to prevent grounding while providing a safe harbour with a stable foundation.[21]

A precise study of sedimentation and its stratification has enabled researchers to establish accurate chronologies for various deposits, particularly because underwater sites rarely experience stratigraphic upheaval, unlike terrestrial archaeological contexts. In the case of Nâyband, we can further corroborate our considerations through our findings and observations.

Looking at the historical context, we observe the significant impact of human activity on the coastal landscape. Interpreting sites like Nâyband can be challenging; however, we can discern several key aspects. Notably, the most developed area lies to the north of the gulf, where substantial commercial ports have emerged. In contrast, the southern region has remained relatively unchanged over time.

This development is not arbitrary; it reflects the availability of deeper and safer waters for navigation, as indicated in historical portolans. Conversely, the southern area poses navigation risks due to hazardous reefs. Within the gulf, the shallow sandy waters present a high risk of grounding, necessitating the concentration of activity in the northern sector. Additionally, prevailing winds dictate that anchoring is more favourable in the northern region, which offers greater shelter from constant winds.

A review of historical satellite imagery from 1985, when human development was minimal, reveals that the only notable harbour is located in the northernmost part of the bay. This observation prompts reflection on the correlation between human impact on coastal sites and their geographical and environmental characteristics.

By comparing our research with available bibliographic and archaeological data, we can attain a heightened awareness of the dynamics that led populations to favour certain sites over others. Just as they did a millennium ago, contemporary humans continue to select locations for habitation and expansion based on geographical positioning and paleoenvironmental conditions.

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[20] CRIPPA, BORRELLI 2019, 29–34.

[21] SALOMON *et al*. 2016; see also GIAIME *et al*. 2019.

Furthermore, we observe the persistent winds characteristic of the Persian Gulf (Fig. 8.3), blowing from the west-northwest to northwest (known as the *Shamal*) and from the southeast to east-southeast (known as *Kaus*). These patterns, consistent with the coastal geography, reinforce the preference for the northernmost part of the gulf for maritime activities.

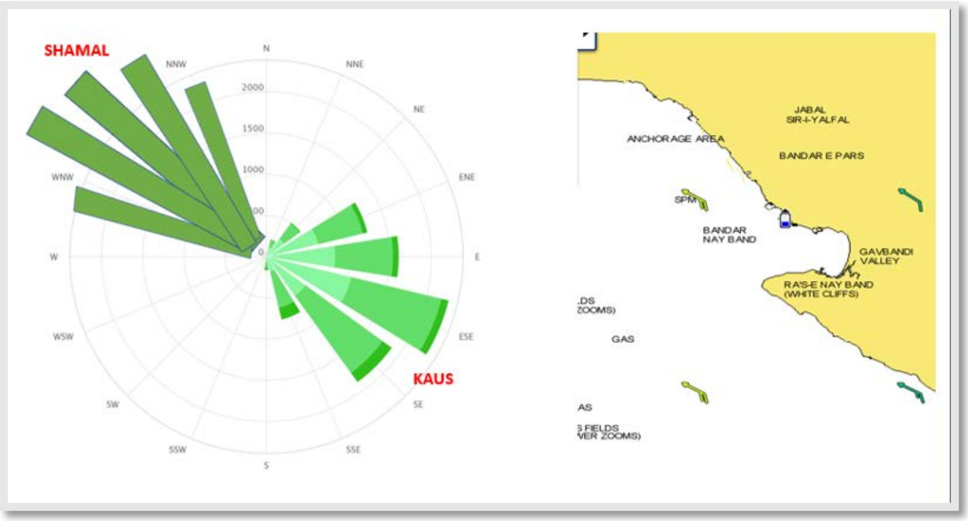

Fig. 8.3. This graphic highlights the predominant wind patterns and their directions in the Persian Gulf (graphic by the author).

8.3. Findings and Conclusions

Our study underscores the importance of adopting a comprehensive approach when exploring ancient coastal sites. By integrating a diverse range of information and perspectives, we can uncover new insights and enhance our understanding of these historically significant locations. The Nâyband bay site exemplifies the effectiveness of such an integrated methodology, highlighting the necessity for a thorough and interdisciplinary approach in archaeological research.

In conclusion, the methodology outlined in this study provides a valuable framework for future research endeavours focused on identifying and assessing ancient coastal sites. By recognizing the interconnectedness of archaeological, climatic, and environmental factors, we can deepen our understanding of the rich cultural heritage preserved in coastal regions like the Nâyband bay site.

Ultimately, climate, environment, and climate change have always played crucial roles in shaping human decision-making throughout history. These factors exhibit variability over time, fluctuating between periods of rapid and gradual change. Presently, the issue of climate change and the imperative for adaptation hold particular significance, especially as we witness swift transformations in our environment. As our predecessors did, we must now strive to learn from past errors and adapt to the irreversible changes that climate and environmental shifts present.

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9. Iranian Researches on Human Settlement in the Central-southern Fars: The Lamerd and Mohr Valleys

Alireza Askari Chaverdi

Abstract

Archaeological research on the northern coast and in the hinterland plains of the Persian Gulf has been very limited and information regarding ancient settlements along the northern coast of the Persian Gulf is limited to sites such as Sirâf, Bushehr, and Hormoz. From this perspective, the new archaeological surveys of the northern coast and the hinterland plains in the counties of Lâmerd and Mohr are of great importance. During historical periods, this area was within the political geography of the Achaemenid, Seleucid, Arsacid, and Sasanian empires. In the Islamic period, the political and social developments of the Fars region, in relation to the coastal areas of the Persian Gulf, influenced the settlement centres of this area. It is evident that in each of these periods, the expansion of human communities in this region depended on their ability to utilize the environmental capacities of the area. The focus of this article is not only to identify the capacity for using natural resources and the techniques employed for their exploitation in each period but also, given the region's location within the geographical area of Fars Province, to shed light on the influence of the Achaemenid and Sasanian empires on the nature of the settlements.

Keywords

Southern Fars, Lâmerd, Mohr, Persian Gulf, Hinterland.

9.1. Geographical and historical introduction

The counties of Lâmerd and Mohr are located in the south of Fars Province, within the geographic coordinates of 52° 20′ 54″ east longitude and 27° 10′ to 28° 25′ north latitude. These counties consist of three plains: Lâmerd, Alamarvdasht, and Darolmizan, which stretch along the Zagros Mountains from the northwest to the southeast, with an average elevation of 450 meters above sea level. The Gavbast Mountain, with an elevation of 2165 meters, is the highest part of the region. During the rainy seasons, three seasonal rivers – Alamarvdasht, Mehran, and Darolmizan – flow through the region. There are 22 *qanât*s (traditional underground aqueducts), springs, and 1500 wells, which constitute the water resources of these counties. In the center of the plains, the land is often saline, alkaline, and generally unsuitable for agriculture. However, the conditions at the foothills differ somewhat. This means that, if sufficient water is available, most of the land in this area can be cultivated. Overall, in the northwestern and western parts of this area, the condition of vegetation cover, pastures, and agriculture is relatively more favorable compared to the eastern and southeastern regions due to the unsuitability of the quality of water and soil resources.

Based on historical texts, ancient Fars constituted a large portion of southern Iran, with its northern, eastern, and western borders extending respectively to the mountains of Isfahan, Kerman, and Khuzestan, and its southern boundary reaching the Persian Gulf.[1] Before Islam, Fars was divided into five *kureh*s ('districts'): Istakhr, Ardashir, Shapur, Kawad, and Darabgerd.[2] During the Islamic period, these divisions changed, and by the medieval Islamic era, the region was divided into four sections: Shabankareh, Central Fars, Kohgiluyeh, and Larestan.[3] Larestan was the southernmost of these four areas, and the present-day counties of Lâmerd and Mohr were located in the southern part of this region. The vast area of Larestan, which extended to the port of Sirâf on the Persian Gulf coast, was part of the Kureh Ardashir before Islam.[4] In the Islamic period, the entire coastal area of Sirâf was known as *Sayf*. In this region, Sayf Ghamarah was to the east of Sirâf, Sayf Muzafar to the west, and Sayf Zahber in the central area.[5] The hinterland plains to the north of the central Sayf (Sirâf) were known as the lands of Karan and Abrahestan, which are now referred to as Mohr and Lâmerd.[6]

Aurel Stein surveyed part of this region during the winter of 1932–1933 and identified 12 archaeological sites in the southern plains.[7] Later, in 1977, Heinz Gaube conducted further investigations in the framework of the Tübingen Atlas Project. In addition to the sites previously identified by Stein, Gaube discovered 21 more archaeological site.[8] Finally, between 1999 and 2001, Ali Askari Chaverdi conducted a three-phase survey within the research project of the Institute of Archaeology at the University of Tehran, under the supervision of Masoud Azarnoush, and identified 43 additional archaeological sites. As a result, the total number of archaeological sites in this region reached 76.

9.2. Objectives of the survey plan

The aim of this comprehensive survey was to identify and record all archaeological sites in order to delineate the cultural phases of this area from the prehistoric period to the historical periods. However, as the work progressed, long-term objectives for this survey were devised, based on work conducted in three phases of field surveys (a comprehensive survey with relative density across the region, a comprehensive survey with higher density in areas with more favourable living conditions, and the selection of one site for systematic sampling).

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[1] Istakhri, cf. AFSHAR 1995, 95.

[2] Istakhri, cf. AFSHAR 1995, 95; Ibn Balkhi, cf. RASTGAR FASAI 1995, 286.

[3] Hosseini Fasai, cf. RASTGAR FASAI 1989, 900.

[4] Istakhri, cf. AFSHAR 1995, 100; Ibn Balkhi, cf. RASTGAR FASAI 1995, 328; Nöldeke, cf. ZARYAB 1999, 48.

[5] Istakhri, cf. AFSHAR 1995, 100; Ibn Balkhi, cf. RASTGAR FASAI 1995, 337; Schwarz, cf. JAHANDARI 1993, 109–111.

[6] Istakhri, cf. AFSHAR 1995, 100; Schwarz, cf. JAHANDARI 1993, 109–111.

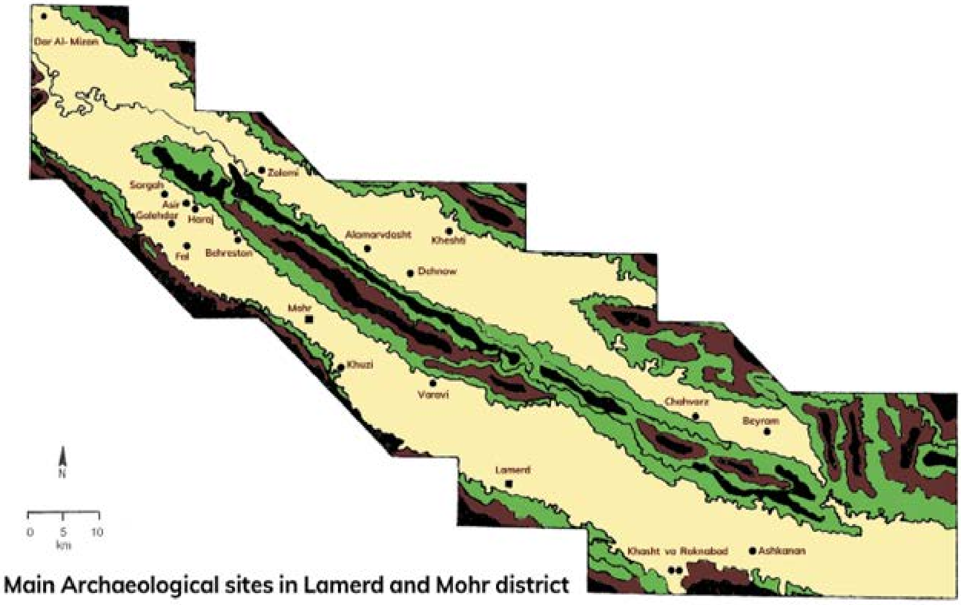
[7] STEIN 1937, 213–234.

[8] GAUBE 1980, 149–166, tabs. 30–37.

For this reason, the recording and sampling of archaeological site artifacts were carried out in such a way that the composition and proportion of the distribution of pottery across different sections of the sites were preserved, ensuring that future studies would not be hindered. At the same time, sufficient information was gathered from each site to identify threatened artifacts, allowing them to be prioritized for recording.

9.3. Survey methodology

The comprehensive survey of this area, covering three plains and a total area of 5,000 square kilometers, was conducted using a field survey approach with vehicles, along with information gathered from local individuals regarding the potential existence of ancient mounds. The survey utilized 1:50000 maps, and by creating a grid with 10x10 kilometer squares based on geographical coordinates, the survey area was divided into 50 squares (Fig. 9.1).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Zalami
Sargah
Asir
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Main Archaeological sites in Lamerd and Mohr district

Fig. 9.1. Main Archaeological sites in Lâmerd and Mohr district, Fars, Iran.

The survey began in the northwest of the southern plain and concluded in the northeast corner of the northern plain. This survey was carried out in three stages: preliminary, supplementary, and focused.

In the preliminary stage, a comprehensive survey method was selected, and the entire area was examined. During this stage, 43 archaeological sites were identified.[9] In the second stage, areas with favourable living conditions, ancient roads, and permanent water sources were surveyed with greater density, resulting in a total of 76 archaeological sites being identified. In the third stage, the survey continued with the selection of a specific site, and due to the significance of the artifacts discovered at the Tomb-e Bot[10] site and the potential for this site to provide suitable answers to the hypotheses in the plan, systematic sampling of the surface artifacts from this site was carried out.

9.4. Findings from the survey

The findings from this survey were categorized and studied in two major groups: structures and pottery. The structures were divided into four categories: defensive architecture, religious architecture, funerary structures and water-related and public utility structures. Additionally, in this study, surface pottery samples collected from 34 archaeological sites in the region were analyzed for typology and relative chronology.

9.4.1. Defensive architectural structures

These structures were built as defensive outposts and safe havens for the inhabitants of the region.[11] In these sites, at least remnants of a tower or a portion of a defensive wall have survived. These types of structures are mostly located on the outskirts of the plains, in foothill areas, or elevated mountain regions. Remains of these structures were identified at 23 sites (Fig 9.2, Nos. 105, 108, 112, 116, 117, 127, 128, 131, 134, 140, 143, 144, 145, 150, 152, 153, 156, 159, 164, 167, 170, 172, 173). The remains from these sites predominantly date back to the Achaemenid, Arsacid, and Sasanian periods. Artifacts from the Achaemenid period were found at one site, from the Arsacid period at three sites, and from the Sasanian period at 20 sites. Additionally, Islamic-era defensive structures were identified at five sites. Most of the defensive structures from the Achaemenid, Arsacid, and Sasanian periods are located in foothill areas or elevated mountainous regions. These structures were constructed using uncut stones or rubble combined with white mortar, likely gypsum,[12] and in some cases, these stones were used without mortar in a dry-stone technique.[13] The Islamic-period sites, especially those belonging to the later periods, are situated in the plains, where mudbrick was the primary building material.[14] Defensive structures located in the plains or the plains' edges are called 'fortresses', while those situated in the foothills or elevated mountain areas are known as *qalât*.

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[9] ASKARI CHAVERDI 2000, 70–74.

[10] ASKARI CHAVERDI, 1999, 66–72.

[11] LEICK 1988, 48.

[12] The use of these types of materials in constructing architectural remains in sites such as Qal'eh Dokhtar, Ardashir Palace in Firuzabad, Bishapur, Qal'eh Yazdegerd, and Takht-e Soleymân is well-known. In Qal'eh Dokhtar and Ardashir Palace, the walls and barrel vaults were built using rubble stones and pebbles combined with gypsum mortar (for more information see HUFF 1993, 45, 51). In the construction of the defensive walls of Bishapur, Qal'eh Yazdegerd, and Takht-e Soleymân, rubble stones and pebbles were also used along with gypsum mortar, and in some cases, *saruj* (a type of traditional mortar) was used (see Ghirshman in KARIMI 2000, 166; Naumann in NAJD SAMII 1996, 34–35; KEALL 1967, 101). This construction technique was evidently local to the Sasanian period buildings

9.4.2. Architectural structures with religious functions

These structures consist of remains whose architectural form reveals their religious function. The remains of this type of structures were identified in seven sites (see Fig. 9.2, nos. 139, 141, 149, 153, 166, 171, 175). In this research, three terms – *chahâr tâq*, mosque, and *emâmzâdeh* – were used to study these types of structures.[15] Considering the cruciform plan of the architectural remains in sites 149 and 153, as well as findings such as platforms or stepped bases, it is likely that these structures were used in connection with Zoroastrian rituals.[16] In addition, the study of surface pottery found in these two sites and nearby sites (sites 147, 148, and 150) indicates that these structures were likely related to the population centers of the Sasanian period located within the boundaries of squares 55–68 and 53–70 (Fig. 9.2). Two mosques were found in sites 139 and 141, while three *emâmzâdeh*s were identified in sites 166, 171, and 175, belonging to the later periods and associated with contemporary population centers.

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in Fars and spread from Fars to other regions with similar environmental conditions (REUTHER 1938, 498–499).

[13] Regarding the defensive wall present in sites numbered 108 and 112, where rubble stones were used in a dry-stone construction method, Stein compared the existing structures in site number 108 with the defensive walls of a fortress called *Zamr-i Atash-Parast*, located in the upper region of the Seyhun River. Due to the similarity of the artifacts from this site with the Zoroastrian fortress in the Seyhun River region, he concluded that these remains likely belonged to Zoroastrians who sought refuge in these places during times of insecurity (STEIN 1937, 225).

[14] The architectural structures present in sites numbered 140, 145, and 164, which were built using bricks, belong to the later Islamic periods.

[15] Typically, this structure is built on a cruciform plan with four supports. These supports gradually arch upwards, creating an arch between each pair of supports. The roof of such buildings usually forms a dome that rests on the four squinches built across and above the upper end of the room's four corners. Additionally, narrow corridors often surround this type of building, connecting the *chahâr tâq* to square rooms (see HUFF 1990). Regarding mosques, it can be stated that: this Islamic period building is designed for performing obligatory prayers and sermons, and it usually has at least one minaret and is often domed. The *emâmzâdeh* is generally recognized as a tomb. In various instances, identifying the buried individual and the date may be possible through local narratives. After mosques, these types of buildings are the most famous in Islamic architecture in Iran (see Hillenbrand in ETESAM 1998, 334–335).

[16] In *chahâr tâq* structures, there is often a platform with a stair-like base for placing a fire altar. These stair-like bases are primarily associated with the religious symbols of ancient Iran (see AZARNOUSH 1984, 176).

9.4.3. Water and public utility structures

These structures consist of works related to water, and to the various uses of this precious element. These structures include dams (water barriers), irrigation canals, mills, and baths.

1. *Dams and Irrigation Canals*. Eight structures numbered 123, 130, 132, 133, 137, 148, 158, and 176 share more or less common characteristics. In the construction of these structures, rubble stones are typically used along with a type of mortar, possibly *saruj*. These structures are located in the foothills, at the edge of the plain, or in the centre of the plain, along the course of a river. Some of these structures, specifically those at sites 130, 133, 137, 158, and 176, were identified as dams. These dams were primarily constructed to catch and store rainwater from violent cloudbursts, and direct water towards agricultural lands. Between these dams and the agricultural lands, there are irrigation canals. Several examples of these structures were identified at sites 123, 132, and 148. The distribution of water structures in the studied area is directly related to the availability of water resources. In the area of squares 49–75, a concentration of four examples of these structures (numbers 130, 132, 133, 137) was discovered, which were established due to the presence of permanent springs in these locations (Fig. 9.2). Due to the long-term use of these types of structures in various periods, numerous changes and technical renovations have occurred in them, making it difficult to determine a specific date for their construction and use. One way to identify the time of use of these structures is to recognize past habitation remains around them. In this manner, the structures located at sites 130, 132, 133, and 137 are attributed to the Islamic period due to the presence of habitation remains from the Achaemenid, Arsacid, Sasanian, and Islamic periods in square 49-75. The water structure at site 148 is dated to the Sasanian period based on the presence of habitation remains from the Arsacid and Sasanian periods in square 55–68, while the structure at site 158 is attributed to the Middle Islamic period due to evidence of habitation from the Arsacid, Sasanian, and Middle Islamic periods in square 54–71.[17] In the area of structure 123, where no examples of habitation remains were found, this structure was dated to the late Islamic period;
2. *Watermills*. A watermill is a structure composed of three main parts: the water transfer channel to the mill, the millstone (*tanureh*),[18] and the chamber below the millstone. These structures have been identified at four sites numbered 120, 142, 151, and 174. Typically, rubble stones and possibly *saruj* mortar are used in the construction of these structures. They are located in the foothill areas next to permanent water sources. Therefore, their distribution in the studied area

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[17] Around the structure in site number 158, Heinz Gaube identified pottery fragments of Samarra, Sgraffiato, and Salmanabad types (Gaube 1980, 154). However, during the author's investigation, no pottery remains were found around this structure.

[18] *Tanureh* is a tower with circular plan with a well located in its centre. This well forms the water reservoir for the mill, and at its lower section, water is directed under high pressure to the lower room through an outlet. The mill wheel and grinding stone are in this chamber.

depends on the locations of springs or *qanât*s. The watermills at sites 120 and 174 (squares 52-70 and 51-76) are situated alongside the permanent water spring known as Fariyab. Similarly, the structure at site 142 is built near the Pasband spring (square 49–79), and the structure at site 151 (square 55–69) is constructed due to the presence of a spring and a *qanat* in the foothill region. These watermills are typically located near modern villages, suggesting they have been used in recent times;

3. *Baths*. Three bath structures, numbered 124, 137, and 169, are located within the boundaries of squares 51–71, 49–76, and 52–74, respectively. These structures share similar characteristics and features. The various sections of these buildings usually include the *sordar*, an entrance space, connecting corridors and hallways, the *bieneh* (main bathing area) where seating and changing facilities are provided, and the *miandar* (intermediate space) which serves as a link between the *bieneh* and the *garmkhâneh* (hot room), where washing takes place and both cold and hot water reservoirs are located. At the end of this space, the *garmkhâneh* is situated.

Based on their inscriptions, these three bath buildings can be attributed to the Qajar period. They were constructed by local chieftains; thus, their distribution is linked to the centers of local power in the region during the Qajar era.

9.4.4. Burial structures

Burial structures refer to any type of architectural feature created to house human remains after death. In the studied area, burial structures in the form of niches carved into cliffs were identified at two sites, numbered 121 and 125. These structures are referred to as *ostodân* or *dakhmak*.[19] Based on references from the *Avesta*, these structures were likely used for burials during the pre-Islamic period.[20] The decorative elements found on the façades of these *ostodân* (such as solid triangles) and the dimensions of their entranceways make them comparable to numerous niches carved into the cliffs of Mount Hossein, Rahmat, Zeidon, Ayoub, and Zaghe in the Marvdasht region of Fars.[21] Since these burial structures are linked to Zoroastrian rituals and have been attributed to the Sasanian period, these two *ostodâns* were likely used during the Sasanian era as well.[22] In ten sites (N° 114, 115, 118, 119,122, 129, 160, 161, 162, and 165) cemeteries dating to the Islamic era were identified. These sites feature rectangular gravestones scattered throughout. On the surfaces of these gravestones, Quranic verses, *hadith*s, or poetry related to death, often in Arabic or Persian, are inscribed in *Tholth* or *Nasta'liq* script. Some of these gravestones also feature geometric decorations or plant motifs. The burial sites at numbers 114, 115, 118, and 119 date back to the 8th century and beyond; sites 115, 160, and 162 to the 11th century and beyond; and sites 161 and 165 to the 12th century and later. Certain sites, like site 115, were used over four centuries, while site 114 was in use for three centuries. The burial structures from the Sasanian period are located in foothill areas, while the Islamic-era cemeteries are situated on the edges of plains and in proximity to modern-day villages.

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[19] According to the fundamental principle of Zoroastrianism, which emphasizes the avoidance of polluting soil, water, and air, the dead were buried in rock tombs, cavities, niches, or jars. One of these methods involved the use of stone niches carved into the slopes of rocks, commonly referred to as *dakhmak* or *ostodân* (see TRÜMPELMANN 1994, 32–33; Boyce, cf. SANATI ZADAEH 1997, 440–446; TAFAZZOLI 1997, 102–107).

[20] In this regard, see DUSTKHAH 2006, 517–576, *Vendidad* fragments 3-9, 3-13; 4-5, 5-16; 6, 49-51; 1-5; 7, 45-54; 8-2; as well as ASKARI CHAVERDI 2002, 574.

[21] The niches carved into the rocks located in the western part of Mount Hussein have been identified by Gropp, who, based on the inscriptions found in them, dated these *ostodâns* to the late Sasanian period (see GROPP 1970, 203–205).

[22] TRÜMPELMANN, 1984, 321–322; Boyce, cf. SANATI ZADAEH 1997, 440–446.

9.4.5. Pottery sampling

During this survey, pottery samples were collected from the surface of 34 archaeological sites.[23] For this purpose, smaller sites (those with an area of less than 5,000 square meters) were divided into four sections using two intersecting axes in the four main cardinal directions. Larger sites were divided into eight sections by using four intersecting axes along both cardinal and intercardinal directions. The aim was to collect at least five samples of each type of pottery from each section. Afterward, the pottery from each section was gathered at the central point of the site, classified, and grouped. From each homogenous group, one or, in some cases, two pottery pieces were selected for design documentation and study, while the remaining pieces were returned to their original location. This method ensured that the natural distribution of pottery across the archaeological mounds was preserved while sufficient samples were collected for study. The typological study of the pottery from this area was carried out based on their shape, manufacturing technique, finishing, decoration, and comparison with similar pieces from archaeological sites in Fars, Kerman, and the southern coast of the Persian Gulf. Based on the analyzed samples, the following chronological sequence is proposed for the studied sites:

1. Prehistoric Period (4000–3500 BCE): Pottery from this period was discovered at site number 107 (Grid 54–67);[24]
2. Achaemenid Period: Pottery from this era was identified at sites 104, 113, 131, and 135;[25]
3. Arsacid Period: Pottery from this period was sampled from sites 101, 102, 104,

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[23] The examination of the sampled pottery from the sites in this area is described in another article (see ASKARI CHAVERDI 2003, 102–107).

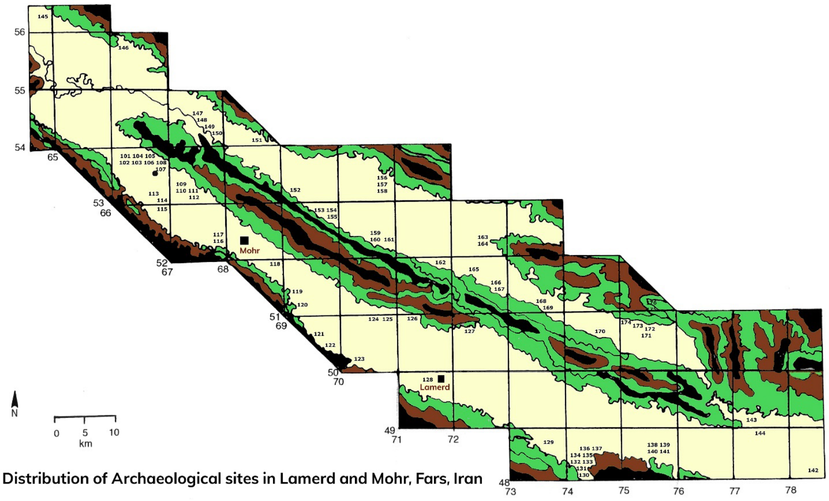
[24] The buff-ware pottery from this site, decorated with geometric, floral, and animal motifs, can be compared with the standard light brown pottery and the fine light brown pottery of Tal-e Bakun A (4000–3500 BCE) (see EGAMI, MASUDA 1962, vol. 1, 90, vol. 2, 36; LAMBERG-KARLOVSKY 1972a, 22).

[25] The pottery from the Achaemenid period in these sites can be compared with similar samples obtained from Tepe Yahya II (500–300 BCE), Tal-e Takht Pasargadae (Late Achaemenid or pre-Achaemenid), and the Ed-dur site on the southern margin of the Persian Gulf (see LAMBERG-KARLOVSKY 1972a, 22; STRONACH 1978, 352–353, fig. 5; DE CARDI 1984, 204, figs. 5, 7, 8).

106, 111, 113, 131, 136, 147, 150, 152, and 157;[26]

4. Sasanian Period: Pottery attributed to this era was collected from sites 101, 102, 103, 104, 105, 106, 109, 110, 111, 113, 117, 131, 134, 135, 136, 147, 149, 150, 152, 153, 154, 155, 156, 157, 163, 168, 170, 172, 173, and 174;[27]
5. Islamic Period: Pottery from the Islamic era was found at sites 101, 102, 103, 104, 105, 106, 107, 113, 131, 136, 145, 154, 155, 168, 170, 172, 173, 174, and 175.[28]

As observed, most of the surveyed sites display a sequence of settlement periods (Fig. 9.2). Prehistoric remains were found at one site, remains of Achaemenid age at four sites, remains of the Arsacid period at 12 sites, Sasanian remains—representing the largest number—at 30 sites, and Islamic period remains at 20 sites.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Distribution of Archaeological sites in Lamerd and Mohr, Fars, Iran

Fig. 9.2. Distribution of archaeological sites in Lâmerd and Mohr, Fars, Iran.

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[26] The most important types of pottery obtained from the studied area include decorated pottery with zigzag patterns, Lundo type pottery featuring decorative motifs of circles and spirals, wavy, vertical lines, triangles, and animal motifs, as well as the well-known Jilingi pottery and amphorae with decorated handles. In this context, see Haerinck in CHOUBAK 1997, 112, 243–244, fig. 14, nos. 12–14; HAERINCK 1980, 48, fig. 5. For other types of pottery obtained from the study area, particularly decorative and relief elements, see VALTZ 1984, 42, fig. 2, no. 10; POTTS 1984, 108, fig. 8, no. 25.

[27] The Sasanian pottery obtained from the archaeological sites in the studied area features colours ranging from grayish, buff, brown, to pink. The decorations on the surface of this type of pottery often consist of zigzag, parallel, and stippled motifs. In some instances, gray pottery is adorned with milky-colored designs. Additionally, in several cases, the surfaces of the pottery are decorated with a blue-green glaze from the Sasanian-Islamic period. These pottery pieces can be compared with similar examples found at sites such as Qasr-e Abu Nasr, Hajiabad, Tepe Yahya, Kish in Mesopotamia, and ancient sites along the northern and southern coasts of the Persian Gulf. In this context, see WHITCOMB 1985, 110–119, figs. 40, 43, 50; 1987, 317, d, c, q; POTTS 1984, 107, fig. 5; AZARNOUSH 1994, 187–206; LANGDON, HARDEN 1934, 124, pl. xvii, b.

[28] The types of Islamic pottery found throughout the studied area include Sasanian-Islamic glazed pottery, splashed-glazed pottery (3rd to 5th century AH; 10th to 12th century CE), Seljuk white pottery (6th to 7th century AH; 13th to 14th century CE), and Safavid pottery (10th to 11th century AH; 17th to 18th century CE), in that order. These pottery types can be compared with similar examples found at the sites of Ghubaira in Kerman, Siraf, Qasr-e Abunasr, and Mesopotamia. In this regard, see BIVAR 2000, 129–130; WHITEHOUSE 1992; WHITCOMB 1985, 66–67; ADAMS 1981, 108.

Therefore, the sequence of settlement periods, based on the pottery collected from this region, indicates that there were 67 settlement phases across the 34 archaeological sites. The distribution of these settlements throughout the area under study shows a relative concentration, particularly in the grid zones 54–67, 49–75, and 55–68.

9.5. The impact of environmental conditions on the formation of ancient settlements

In the settlement period distribution map of the studied area, we observe that most of the archaeological sites have multiple settlement periods. In total, 120 settlement periods have been identified for the 76 archaeological sites surveyed in this region. The majority of the settlements belong to the Sassanid and Islamic periods, while the fewest belong to the prehistoric period. These settlements are scattered in a relatively coordinated manner across all the studied squares, with higher density in some squares such as 54–67, 49–75, 55–68, and 54–71 (Fig. 9.2).

The density of settlements in specific areas of the region may indicate the potential environmental resources available in those areas. Naturally, for each square, first the continuity of the existing settlement periods is described, followed by the environmental conditions, and finally, the techniques used to better exploit the environmental resources of that area are examined.

1. Square 54-67: In this square, a total of 26 settlement periods were formed in ten sites numbered 101, 102, 103, 104, 105, 106, 107, 108, 113, and 114, from the prehistoric periods (4000–3500 BCE) to the later centuries of the Islamic period. From an environmental perspective, today this area is more favorable than other squares. The soil in this area is fertile due to the presence of freshwater sources, and agriculture is conducted using irrigation throughout the 54–67 network;
2. Square 49–75: In this square, 14 settlement periods were formed in sites numbered 130, 131, 132, 133, 134, 135, 136, and 137 from the Achaemenid period to the later centuries of the Islamic period. In addition to the favorable environmental conditions similar to square 54-67, this square is located on the communication route between the southern plain and the Persian Gulf. The connection between the southern plain of the studied area and the coastal regions was only possible through the natural pass located in this area. Additionally, permanent springs flow in the Tang Khor area, which has led to the creation of several water structures. The remains in sites numbered 130, 132, 133, and 137 consist of water structures such as dams, irrigation canals and an aqueduct (site 132) which were built to better utilize the water resources of this area;
3. Square 55–68: In this square, six settlement periods were formed in sites numbered 147, 148, 149, and 150 during the Arsacid and Sasanian periods. The settlements in this area emerged due to the fertile soil and freshwater resource. In this square, water from three *qanât*s (underground water channels) flowed from the foothills towards the plain. To allow the water from one of these *qanât*s to cross the river located in the center of the plain, a “Camel’s Neck” canal

technique (site number 148) was used. Naturally, using such technical methods has many benefits, such as preventing the destruction of the canal's bed during winter floods and preventing the water path from being diverted. The water directed towards the agricultural lands through this method did not mix with the river water, and most importantly, lower costs were incurred for the maintenance of these structures throughout the year;

4. Square 54–71: In this area, four settlement periods were formed in sites numbered 156, 157, and 158 during the Arsacid, Sasanian, and Islamic periods. The settlements in this square are likely formed in response to the environmental conditions in the area. However, the land in this area has become saline and barren in the present day. The change in environmental conditions in this square occurred because floods flowing from the foothills towards the dam located in this area (site 158) carried sediments from mountains composed of marl.

In addition to these factors, the formation of other settlements depended on the environmental conditions present in the region. Due to the area's hot and dry climate, the environmental conditions for establishing settlements were either absent in other areas or the capacity to utilize natural resources was limited in certain zones. Therefore, it was only during the later Islamic period, through the use of improved techniques, that the limited natural resources in these areas were utilized.

9.6. Chronological framework of the settlement periods

Based on the results obtained from studying the artifacts found in 76 archaeological sites, we will describe the settlement periods of this region within the chronological framework of the cultural area of Fars (Figs. 9.2–9.3).[29]

Prehistoric Period (5400–3500 BCE): During Stein's investigations, a site from the prehistoric period was identified in this region.[30] It appears that the oldest settlement period in this area belongs to site number 107 (Fig. 9.2).

Protohistoric Period (3400–500 BCE): In the archaeological surveys of this region, no artifacts comparable to the cultures of the early historic periods of Fars (Lapui, Banesh, Kaftari, Qaleh, Shogha, or Teimuran) were found.

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[29] The chronology of artifacts from the prehistoric period in this region is based on data obtained from archaeological sites in the Fars region (the Moshaqi, Jari, Bakun, and Lepuyi cultures, 5400–3400 BCE). (For more information, see LANGSDORFF, MCCOWN 1942, 24–60; EGAMI, MASUDA 1962, vol. 1, 90, fig 20; ALIZADEH 1994, 9–38). In addition, the chronology of potential early historic artifacts in this area has been established by comparing these artifacts with archaeological data from the Banesh, Kaftari, Shogha, or Timurid periods (3400–500 BCE) in Fars. (For this, see NICOL 1970, 19–21; SUMNER 1974, 164–170). Furthermore, during the historical period, the archaeological data from this region have been classified and dated in relation to artifacts from the Achaemenid, Arsacid, and Sasanian periods. The most important sites from this period, which have been identified through archaeological research, include Pasargadae, Persepolis, Tepe Yahya in Kerman, Qasr Abu-Nasr in Shiraz, Firuzabad, Hajiabad Darab in Fars, Ed-Dur in the United Arab Emirates, and Ghannam Island in Oman (for more details, see Stronach in KHATIB SHAHIDI 2000, 304–365; SCHMIDT 1953, 55–56; SUMNER 1986, 3–15; LAMBERG-KARLOVSKY 1972a, 32; DE CARDI 1975, 201–215). Additionally, the chronology of Islamic artifacts in this region has been dated in relation to similar artifacts found at the archaeological sites of Siraf Port on the Persian Gulf coast and Ghobira in Kerman (For more information, see BIVAR 2000, 127–175; STEIN 1937, 218–219).

[30] STEIN 1937, 218–219.

Achaemenid Period: Artifacts from this period were identified in four sites. These artifacts consist of pottery collected from the surface of sites 104, 113, 131, and 135 (Fig. 9.2).

Arsacid Period: Twelve sites from this period were identified. The surface pottery collected from sites 101, 102, 104, 106, 111, 113, 131, 136, 147, 150, 152, and 157 is attributed to this period. Sites 104, 113, and 131 continued to be inhabited from the previous Achaemenid period, while the other sites were first used during the Parthian period (Fig. 9.2).

Sasanian Period: Artifacts from 44 sites belonging to this period were recognized. Among these, 13 sites continued from previous periods, while other sites were inhabited for the first time during this period. The artifacts from this period include architectural structures, burial structures, and one water structure. Pottery from this cultural period was found at 30 sites (Fig. 9.2).

Islamic Period: Islamic artifacts have been recorded at 50 sites. In this period, 19 sites continued from previous settlement periods, while other sites were used for the first time during this period. These artifacts belong to the early, middle, and late Islamic centuries. Artifacts from the early centuries of this period were found at 19 sites, artifacts from the middle centuries at eight sites, and artifacts from the late Islamic period at 32 sites. Thus, the settlement periods during the Islamic period emerged over 59 stages (Fig. 9.2).

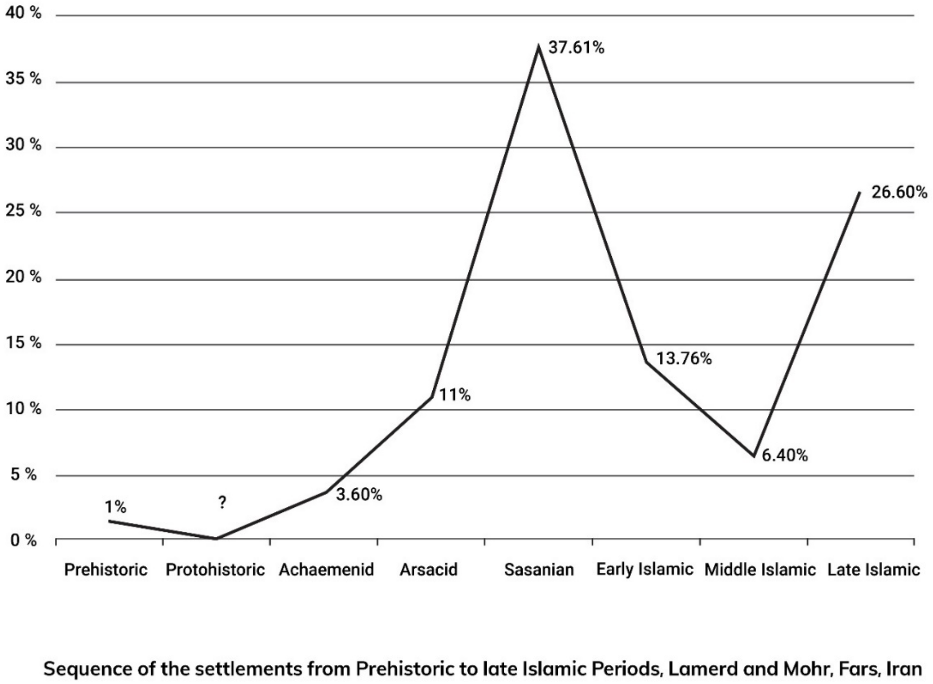

Fig. 9.3. Sequence of the settlements from Prehistoric to late Islamic Periods, Lâmerd and Mohr, Fars, Iran.

9.7. Conclusions

The archaeological study of this area aimed to understand its cultural stages from prehistoric to historical periods. This comprehensive survey was conducted across the region, with a focus on areas with more favorable environmental conditions.

The method used helped identify specific settlement patterns that played a major role in shaping the archaeological sites of each period – prehistoric, historical, and Islamic. Analysis of the data revealed that the earliest settlement in this region dates back to the Bakun A period (late 5th millennium and early 4th millennium BCE) on a site covering approximately 1.3 hectares in the most favorable section of the region, identified as square 54–67. The advanced Bakun A culture (4000–3500 BCE) is considered the most widespread prehistoric culture in Fars[31], extending its influence to southern areas of Fars by the end of the prehistoric period[32]. However, the data also indicated a cultural-historical gap between the Bakun A culture and the start of the Achaemenid period, raising questions about whether the region was uninhabited during this time (Fig. 9.2). Unfortunately, the survey could not provide an answer to this question, though it is hypothesized that due to socio-political conditions in the early historical periods, rural populations may have been drawn to urban centers. The cultural landscape of adjacent regions during the 3rd millennium BCE shows that the Yahya IV culture and the urban culture of the Halil Rud region in Kerman were connected to the cultures of the east (Baluchistan), west (Mesopotamia), and the Persian Gulf[33]. The Kaftari culture (2200–1800 BCE) flourished in northern Fars during the 2nd millennium BCE, followed by Qal'eh, Shogha, and Teimuran cultures (1800–800 BCE).[34] Despite this, no settlements from these periods have been discovered in the southern parts of Fars, and further fieldwork is needed to better understand the early historical cultures in this region. Areas around squares 54–67 and 49–75 are recommended for such future research due to their favourable environmental potential. During the Achaemenid period, the settlement conditions in this region gradually changed. Four sites in squares 54–67 and 49–75 were inhabited, likely influenced by the region's strategic importance as the origin of ruling dynasties from the Achaemenid to Sasanian periods. After the fall of the Achaemenid Empire and during the Arsacid period, the region maintained its cultural identity while being governed by local rulers.[35] The region seems to have developed during the Arsacid period, with 12 sites being inhabited during this time.

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[31] Alizadeh 1994, 12.

[32] During Sir Aurel Stein's investigations, this site was identified. At that time, Stein compared the decorated pottery from this site with the pottery from Susa, Mesopotamia, Baluchistan, and Kerman (Stein 1937, 218–222). Later, when archaeological excavations were carried out on the prehistoric mounds of the Marvdasht Plain, it was revealed that the decorated pottery from this site could be compared to the buff-colored painted pottery from Tal-e Bakun A (see Lamberg-Karlovsky 1972b, 97).

[33] Lamberg-Karlovsky 1972b, 95–101; Also, for more on the significance of urban civilization in the southeastern region of Iran, see Majidzadeh 2001, 5–12.

[34] The Kaftari culture has been identified in 18 sites, the Qal'eh culture in one site, and the Shogha and Teimuran cultures in eight sites in the Marvdasht plain so far (see Alizadeh 1994, 42).

[35] In this regard, see Sellwood 1983, 299–306; Askari Chaverdi 1999, 66–72.

The findings from one of the most important sites of the Arsacid period (site 104), where a stratified systematic sampling method was employed, suggest that the socio-political structure of Fars was largely preserved after the Achaemenid collapse.[36] In the Sasanian period, the region lay on a key trade route from the city of Gur (Ardashir Khwarrah) to the coast of the Persian Gulf. [37] Improved communication, trade, and likely agriculture contributed to the region's development,[38] with a significant population increase observed by the end of the Sasanian era (Fig. 9.3). Sasanian settlements were identified in 44 archaeological sites, distributed relatively evenly across the region, and for the first time, settlements extended beyond squares 54–67, 49–75, and 55–68, possibly reflecting the technical capabilities of Sasanian societies in utilizing the area's limited environmental resources. [39] Settlement continued during the Islamic period, particularly in the early centuries. However, with the decline of Sirâf[40] and the shift of trade routes towards Kish Island and the port of Hozu[41] in the 6th century AH (13th century CE), the number of settlements decreased. From the 8th century AH (15th century CE) onward, the region regained importance due to the political-religious significance of the town of Fal (site 115) and its connections to other parts of Fars.[42] By the late Safavid period, population growth was further stimulated by the relocation of a thousand Lur families to the region[43] and the technical advancements of local societies in better exploiting natural resources, leading to further regional development (Fig. 9.3).

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[36] Using the stratified systematic sampling method, the southeastern section of the Tomb-e Bot site (Site No. 104) was selected for surface sampling and analysis. After mapping, contour creation, and calculating the site's area and elevation, this section was grid-marked for surface artifact sampling. A network consisting of 600 squares, each measuring 5 by 5 meters, was created, and surface artifacts were collected from every other square. In total, 7,496 artifact fragments from various periods were recovered across the network. The majority of artifacts collected from the site consisted of unglazed and undecorated pottery, making up 91.07% of the total finds. Upon further study of the pottery remains from this site, it became evident that the area was inhabited before the Achaemenid period (probably in the late first half of the 1st millennium BCE). During the Achaemenid period, the site grew and prospered alongside the rise of the Achaemenid Empire. However, after the fall of the Achaemenids, the site experienced a slight decline during the Seleucid and Arsacid periods. From the mid-Arsacid to the early Sasanian period, the site saw significant growth. Its importance gradually diminished from the mid-Sasanian period onward.

[37] Istakhri, cf. AFSHAR 1995, 100; Ibn Balkhi, cf. RASTGAR FASAI 1995, 328; Nöldeke, cf. ZARYAB 1999, 48.

[38] During the Sasanian period, agricultural lands, which were almost the only significant source of tax revenue, were more protected than in other periods; see Nöldeke's translation in ZARYAB 1999, 483. This situation is particularly confirmed in most historical texts regarding the late Sasanian era (see Christensen's translation in YASEMI 1993, 484–506; for Ibn al-Athir cf. BASTANI PARIZI 1986, 89). Additionally, regarding the flourishing of Sasanian commercial activities in the 4th and 5th centuries CE in the Persian Gulf and Indian Ocean, and the archaeological data supporting this at the time of writing, now quite different, see WHITEHOUSE, WILLIAMSON 1973, 29–49.

[39] The development of technical abilities in better utilizing natural resources during the Sasanian period, particularly in relation to irrigation methods in the Susiana plain and the Diyala region of Mesopotamia, has been studied extensively. Population growth in relation to settlement patterns during the Sasanian period has shown similar trends in both regions (see WENKE 1987, 258). Adams attributes one of the major reasons for this similarity and the transformation in population growth to irrigation techniques and urbanization programs overseen by the state (see ADAMS 1962, 179). However, Robert Wenke believes that in addition to environmental and agricultural factors, other elements such as political, social, and even ideological issues are necessary for a complete understanding of such transformations (see WENKE 1987, 259).

[40] WHITEHOUSE 1974, 363–269.

[41] In the 6th century AH (13th century CE), the port of Hozu, located on the coast opposite Kish Island, emerged as an important commercial port in the Persian Gulf (see Schwarz's references in JAHANDARI 1993, 113, and ERFAN 1995, 277, for Le Strange's).

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[42] AUBIN 1969, 23–24.

[43] Hosseini Fasai, cf. RASTGAR FASAI 1989.

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10. Craft Productions in *Ardaxšīr-Xwarrah*

Paolo Severi

Abstract

Like footprints on a path, artifacts constitute tangible traces of man's technical and cultural development. Of great interest is the case of ancient Ardaxšīr-Xwarrah *(Fars, Iran), a site that, because of its archaeological and urban context and its architectural remains, represents one of the cornerstones for understanding the Sasanian world. While the grandeur of the architectural remains demonstrates its importance, the large amount of surface archaeological material testifies to its long and complex life. Studies conducted on the city, however, have focused mainly on architectural structures and urban layout, neglecting the surface documentation. The present contribution constitutes a preliminary step in the systematic study of the craft productions of* Ardaxšīr-Xwarrah, *gathering the clues of possible craft activities from the data recently collected in Firuzabad in addition to the excavations conducted by the ICAR. Although the absence of a certain stratigraphic sequence does not allow placing the collected data in a precise chronological quander, it has been possible to initiate a study of at least some of the traces of ancient craft activities. These preliminary reflections represent a first glimpse into the daily life of the* Ardaxšīr-Xwarrah *site and go beyond the debate on the symbolic and formal aspect of the city and instead understand the practical aspects that ensured its development and evolution for more than ten centuries.*[1]

Keywords

Ardaxšīr-Xwarrah, Shahr-e Gur, Craft activities, Glass-working, Glass-processing.

10.1. Introduction

The foundation of the new city of *Ardaxšīr-Xwarrah* (literally the 'Glory of Ardashir')

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[1] The activities were carried out in the frame of the Research Project of National Interest – PRIN 2017 (no. 2017PR34CS) entitled 'Eranshahr: Man, Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan', with the unit of Sapienza University of Rome directed by Prof. Carlo Cereti as national leader and the unity of the University of Turin directed by Prof. Vito Messina as third component unit.

is one of the key moments in the formation and establishment of the Sasanian reign. The city is located in the modern Firuzabad plain (Fars, Iran), approximatively 110 km south of Shiraz and 3 km east of modern city of Firuzabad. It was founded by king Ardashir I after his rise to power in the first quarter of the III century CE.[2] As scholars have extensively pointed out, the probable tension with the landowning nobles after his authoritarian seizure of power and the hardly defensible position of the Istakhr area, prompted the king to seek a less densely populated and strategically favorable area where he could settle his supporters and assert his power.[3]

In this view the rather extensive and sparsely populated Firuzabad plain, despite its swampy nature, represented a reasonable choice not without technical and technological challenges to overcome. This area was chosen following criteria of accessibility and defense, climate, water supply and agricultural development, aspects of fundamental importance to the sustainability and development of the city. *Ardaxšīr-Xwarrah* in the Middle-Persian texts, nowadays Shahr-e Gur, is an expression of the king's ideologies of royalty and cosmic order, not only as the center of an empire but also to symbolize the centrality of the King of Kings within it.[4] However, the symbolic meaning of the urban plan was pragmatically adapted to the Firuzabad plain and the water reclamation program required to make it habitable. While the radial division of space may be impractical, the organization, orientation and adaptation of the urban plan fit the terrain perfectly, suggesting careful planning to optimize reclamation and water control operations.[5] The importance of the city is evidenced by its innovative layout, its buildings and its location in a geographical context characterized by the presence of several official monuments.

Until now, almost nothing is known about the daily life and production activities that took place there; even the pragmatic solutions of water supply, land reclamation and land exploitation adopted during the planning and construction of the city allow to hypothesize a vivid life in the center in terms of agricultural activity, craft productions and trade. *Ardaxšīr-Xwarrah* should have been one of the centers of the complex and extended trade network with a likely closer connection to the Persian Gulf area, where early Sasanian economic programs from the time of Ardashir I onwards were of primary interest.[6]

The aim of this contribution is to take a first step in the study of craft activities at the site. In fact, many of the reports from the past and more recent archaeological activities contain information about that and gathering them together will testify to a wide preliminary archaeological record of craft activities documented at the site during the several years of archaeological studies which interested the site.[7]

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[2] HUFF 2012.

[3] HUFF 2008, 37; 2014, 154.

[4] CANEPA 2018, 127.

[5] HUFF 2008.

[6] DARYAEE 2009, 127.

[7] HUFF 2008; 2014; JA'FARI-ZAND 2017; CALLIERI *et al.* 2021.

10.2. The archaeological activities at *Ardaxšīr-Xwarrah*

10.2.1. Past archaeological activities

The research activities that have taken place in the city and its landscape context have inevitably been conditioned by its nature. In fact, because of its extent, its peculiar planimetric layout and the intense modern agricultural activity that has altered its contextual preservation, archaeological research has focused mainly on surveying the most obvious architectural remains and the planimetric system.

Archaeological excavations have been few, and unfortunately a reliable stratigraphic and chronological sequence of the site is still lacking. After the 1978 archaeological activities by Dr. D. Huff, in 2005 the Iranian Center for Archaeological Research (ICAR) initiated an excavation campaign under the direction of late M. Azarnoush with the collaboration of D. Huff. Despite the enormous importance of the remains unearthed, the excavation report is still unpublished and only some preliminary data are available in the publications[8] of D. Huff and A. Ja'fari-Zand who collaborated on the 2005 campaign and from the unpublished report[9] of L. Niakan who collaborated on the same campaign.

10.2.2. Recent archaeological activities

The most recent archaeological activities at *Ardaxšīr-Xwarrah* have been conducted by the French team directed by M. Djamali which focused on the study of the city's water management, [10] and by the joint Iranian-Italian archaeological mission, directed by A. Askari-Chaverdi (Shiraz University) and P. Callieri (University of Bologna) in 2019, which focused on documenting and verifying and cataloguing the architectural evidence of the areas within the defensive wall in addition to the connectivity between the Iranian highlands and the Persian Gulf through *Ardaxšīr-Xwarrah.*[11]

10.3. Traces of craft activities at *Ardaxšīr-Xwarrah* according to the field works

10.3.1. Data from the 2005/2006 excavation campaign

The excavations of the Iranian Center for Archaeological Research (ICAR) have been concentrated in the central sector of the city, investigating five different areas among which the Tirbal and the Takht-e Neshin (Fig. 10.1) are the most astonishing ones, due to the visible architectural remains. The activities led to the discovery of several features, the most interesting of which, for the purposes of this contribution, are the unearthing of two separated structures within a short distance of each other located a few hundred meters north-west of the Tirbal and of layers of industrial waste materials in the area surrounding this building.

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[8] HUFF 2008; JA'FARI-ZAND 2017.

[9] NIAKAN 2006. The access to the unpublished report of Dr. L. Niakan have been kindly permitted by the Firuzabad office base of the UNESCO 'Sassanid Archaeological Landscape of Fars Region'.

[10] DJAMALI *et al*. 2021.

[11] CALLIERI *et al*. 2021

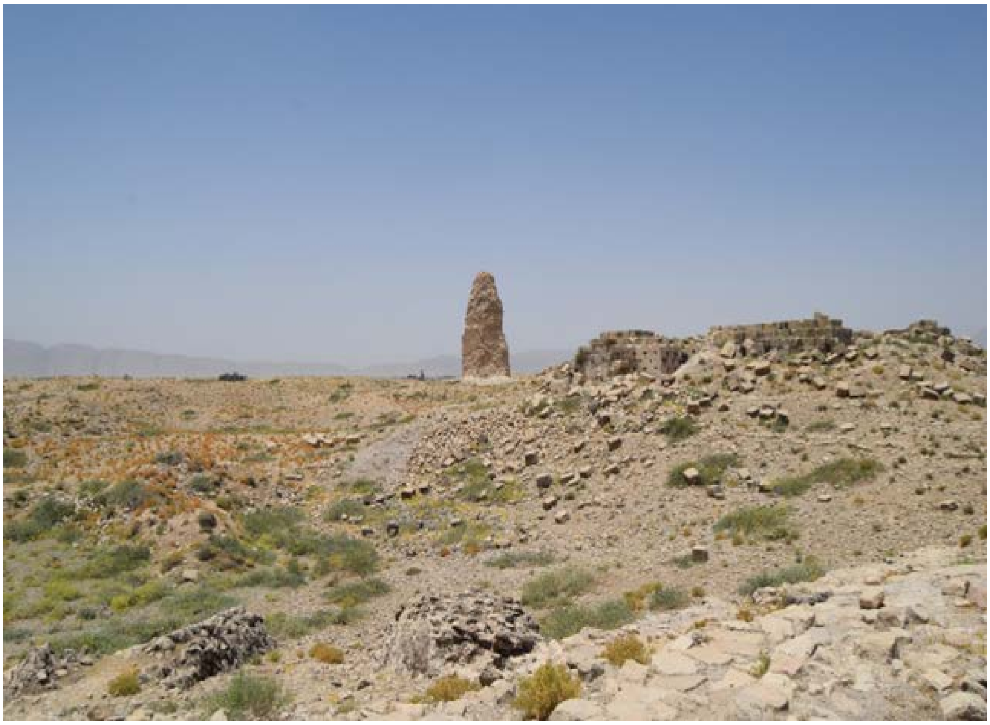

Fig. 10.1. View of the Takht-e Neshin and the Tirbal from south-east (photo by the author).

As mentioned above, the excavation in the area north-west of the Tirbal brought to light two separated structures: the first structure is characterized by the presence of wall paintings and decorated floors with a possible funerary function.[12] The funerary complex was covered by layers of waste material identified as the results of the activity of a probable Islamic workshop with the presence of a stone gutter for water disposal (Fig. 10.2).[13]

The information on the second structure is scanter and the identification is still debated: the preliminary chronological identification to the Islamic period is based on the similarity in shape with the thirteenth-century observatory at *Rasadxâneh* in Maragheh[14] even though the dimensions are significantly different. Dietrich Huff, interestingly, points out that "an interpretation as a large kiln should not be excluded".[15] This interpretation probably originates from the oval shape of the structure and layers of waste materials identified during the excavations as well as the two rows of rectangular structures in the center of the area. Unfortunately, no further details explaining the interpretative criteria were provided in the article. However, this interpretative hypothesis could be seen as the first clue of possible craft production in the city.

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[12] Huff 2008; 2014; Ja'fari-Zand 2017; Bartolucci 2020.

[13] Ja'fari-Zand 2017, 260.

[14] Huff 2008, 49 n. 67, 57.

[15] Huff 2008, 49 n. 67, 57.

The second area which produced some useful data for the purposes of this contribution was located at the foot of the central tower of the city.[16] L. Niakan points out that the excavation brought to light the remains of the inner stairs as well as the original façade of the Tirbal. These wall remains were covered by accumulation layers characterized by the presence of extended quantity of wasters of craft productions including great quantity of glaze, often mixed with layers of fired sandy clay. Furthermore, the scholar reported that these waste layers were extended all around the tower reaching the Sasanian levels probably identified through the pottery fragments and wall remains. The pottery fragments of the accumulation layers and the evidence of reuse of the building materials of the central tower allowed L. Niakan to identify the area as a dumping ground for an Islamic-time workshop that should have been located in close proximity to the area excavated during the campaign.

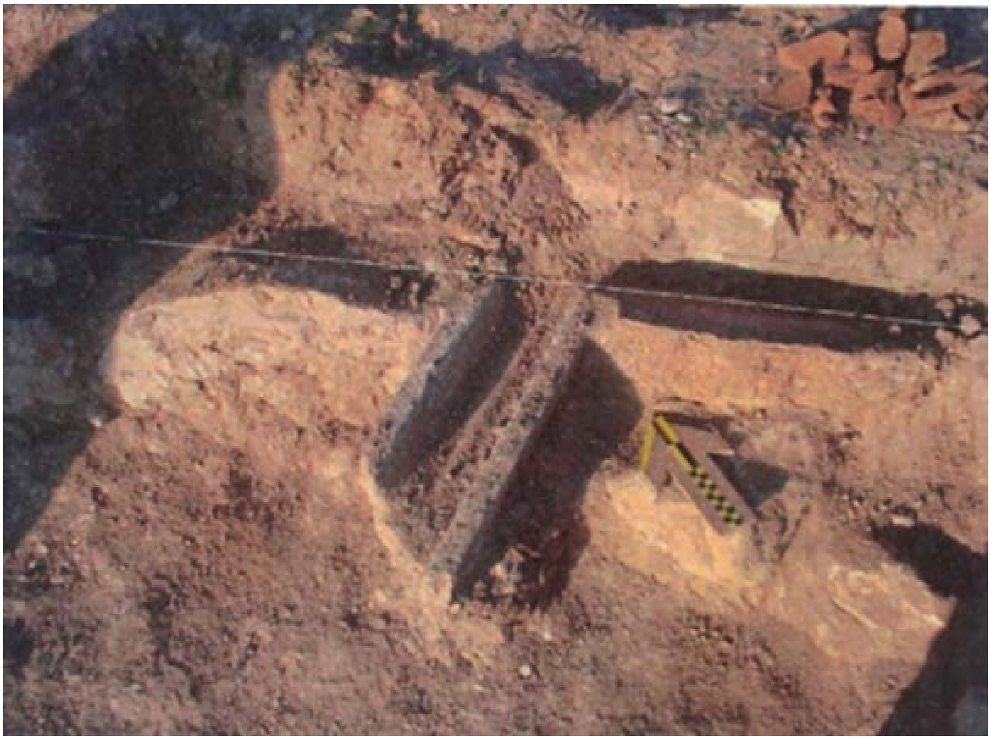

Fig. 10.2. The stone gutter from the layers covering the funerary complex with painted decorations (after JA'FARI-ZAND 2017, 257, fig. 6).

The published and unpublished reports of the 2005/2006 excavation campaign gave some preliminary material data about possible craft activities in the central area of the city: the accumulation of several layers of waste glass, glaze and pottery in both the excavated areas and the possible identification of one of the structures as a kiln may be considered clues of craftwork activities and facilities. Despite the lack of a wide photographic documentation of these layers and their finds, the stratigraphic relationship between these and the structures belonging to the Sasanian period (stairs and walls of the Tirbal and painted funerary complex) allow to hypothesize a later period for the accumulation of the waste layers of craft activities, probably from the end of the Sasanian period, to which the start of the dismantling of the central tower has been hypothetically dated.[17]

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[16] Cfr. note 7.

10.3.2. Data from the 2019 survey

The research activity of the Joint Iranian-Italian Archaeological Mission follows the horizon of a productive city at the center of a complex and developed network of land use and connection, with the goal of understanding *Ardaxšīr-Xwarrah* and its connectivity and influence on the Persian Gulf area. Non-invasive methods (photogrammetric UAV system and magnetometer analysis) were used to identify the layout of the city and examine the possible presence of structures below the surface, which today appears flattened and devoid of surface structures due to agricultural works.[18]

Preliminary data from topographic and geophysical surveys in the city may be useful in providing some general hypotheses about the productive activities that may have taken place. Nevertheless, some key geophysical data have not yet been made public, so the hypotheses that will be developed in this paper will be tested in the future based on forthcoming geophysical data.

10.3.3. The data from the topographical survey

One of the activities carried out by the Joint Iranian-Italian Mission during the first campaign was to conduct topographic surveys of the inner-city area in order to characterize and document the topographic and archaeological contexts through a three-phase analytical procedure from macro-scale to micro-scale.[19] The third phase of analysis consisted of the elaboration of a DEM model and the autoptic description of the identified structural elements, with the aim of classifying them on the basis of the characteristics of masonry, thickness, and orientation. This operation allowed the identification of architectural blocks within the urban context of the city center[20] (Fig. 10.3).

A structure located in the central area of the city, near a large mound about 3.0 m high, could be identified as a possible bricks kiln through the presence of rows of bricks with several traces of firing (Fig. 10.4).[21] Unfortunately, the lack of archaeological data does not allow us to have further information about this possible craft structure, and only the future excavation could verify it. However, if this interpretation will be confirmed, the structure location in the center of the city, which has always been assumed to be an official area with symbolic value,[22] could allow us to date the kiln function to a later period, which exhibits a significant change from the symbolic dimension of the central area of the city.

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[17] HUFF 2014, 170.

[18] CALLIERI *et al*. 2021, 74.

[19] CALLIERI *et al*. 2021, 64–68.

[20] CALLIERI *et al*. 2021, 64–68.

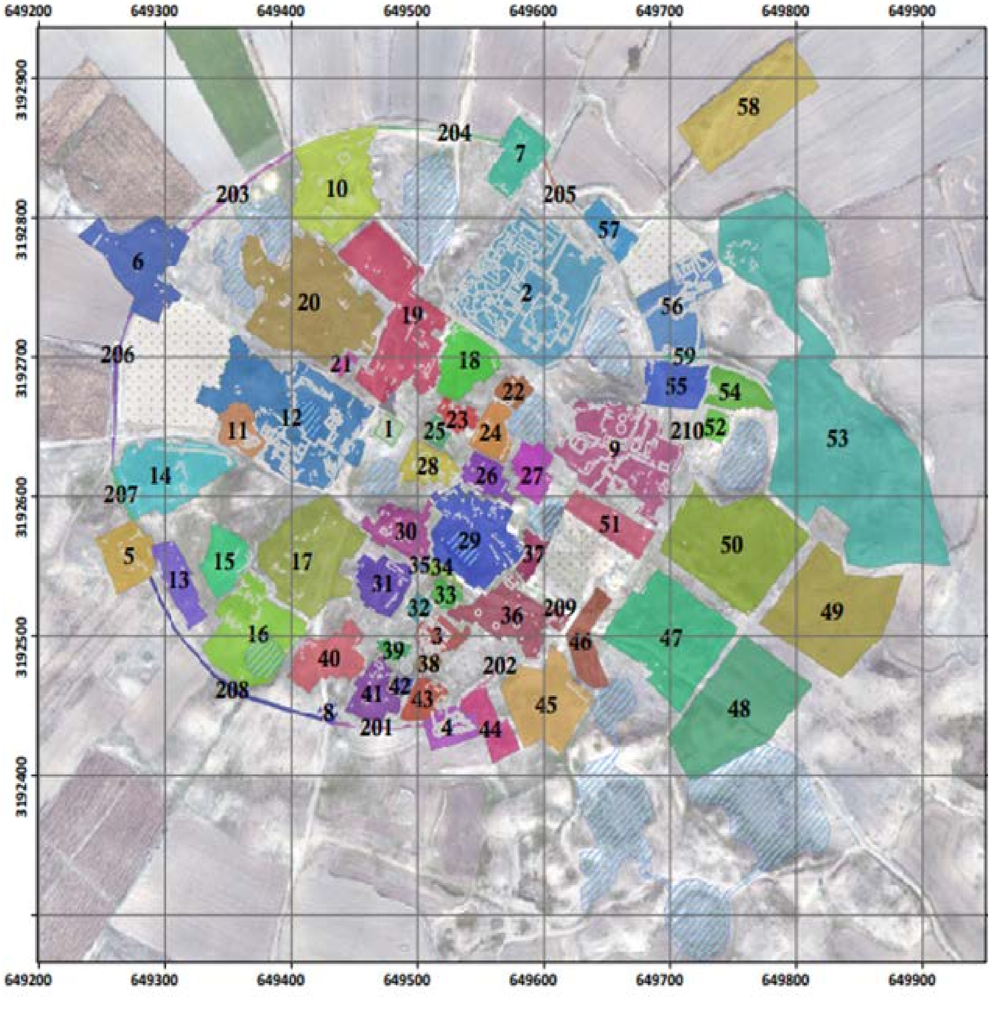
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Fig. 10.3. Map of the architectural blocks identified in the central area of *Ardashir-Xwarrah*: N°11 is the presumed brick-furnace, N°1 is the Tirbal (drawing by Ali Eghra).

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[21] Personal communication with Ali Eghra to whom goes my thanks.

[22] HUFF 2014, 204.

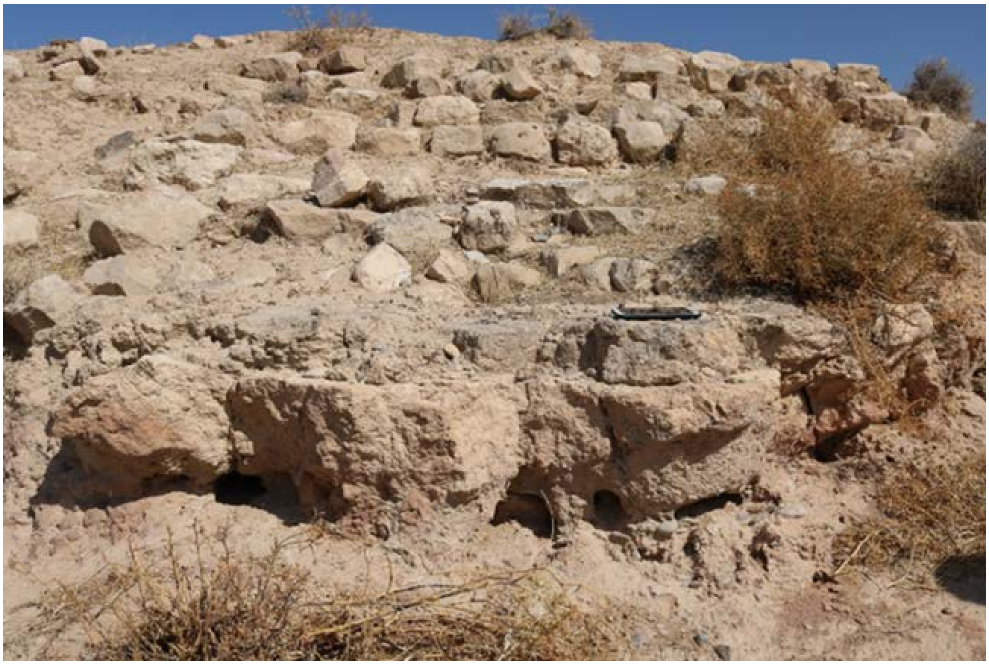

Fig. 10.4. Architectural remains with traces of firing (photo by Ali Eghra).

10.3.4. The data from the geophysical survey

The preliminary data, makes it possible to hypothesize the artisanal-productive activities of the city. In 2019, geophysical prospecting was carried out in two areas, namely A and B (Fig. 10.5), in order to gather information on different urbanistic aspects of the city. Area A was located in the south-west area of the city beyond the fortification wall on the southern city road; area B instead was located on the north-west side of the innermost area, on the western road.[23]

The results from both areas show significant anomalies that can be interpreted as the remains of architectural constructions. In addition, in both Area A and Area B, "many magnetic dipoles or bipolar magnetic anomalies" are visible.[24] These types of anomalies are due to heated areas, which can be interpreted as heated structures or masses of heated materials below the surface. As a result, it is possible to identify these anomalies as the remains of furnaces or areas of accumulation of heated wasters from the craft production processes.[25]

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[23] CALLIERI *et al*. 2021, 76.

[24] CALLIERI *et al*. 2021, 77.

[25] Personal communication of Prof. Kourosh MohammadKhani, to whom goes my thanks, confirmed this interpretative hypothesis.

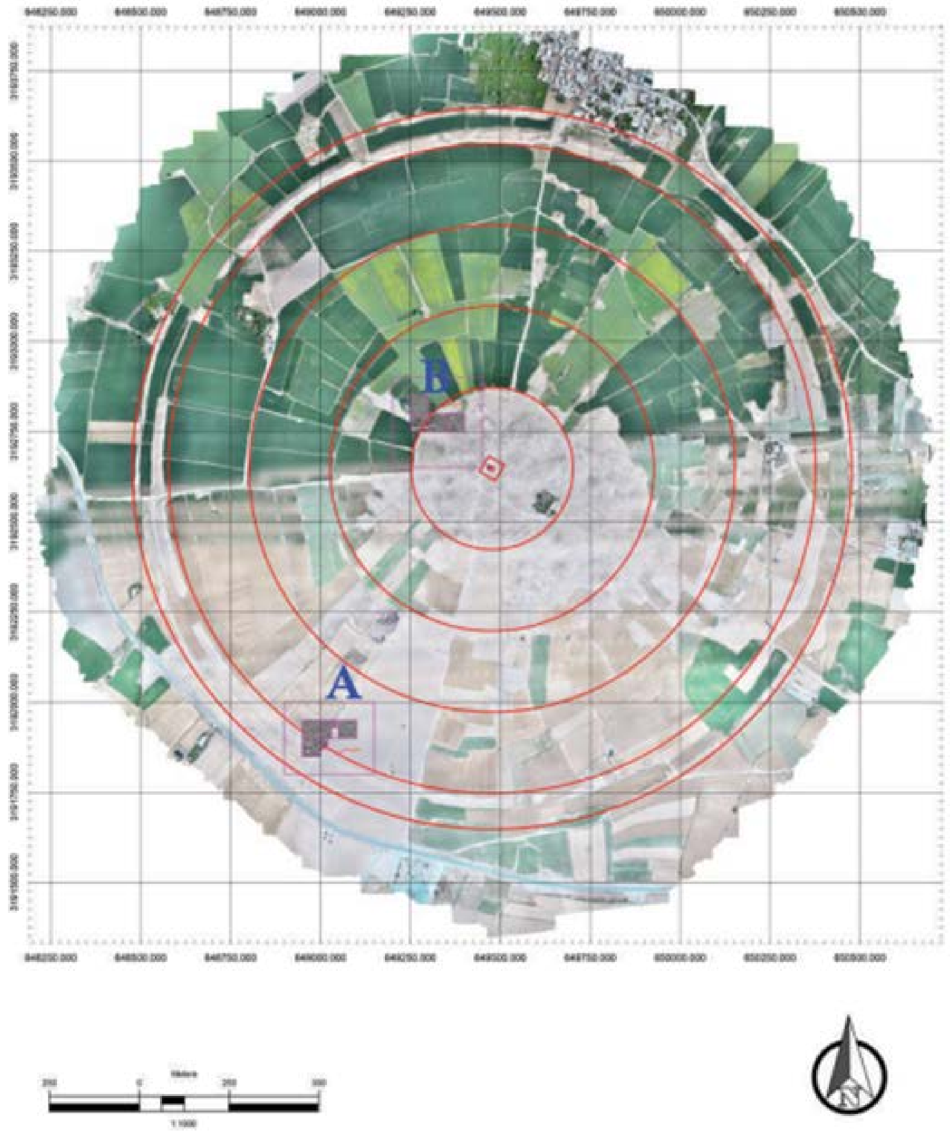

Fig. 10.5. Location of the two areas surveyed by geophysical analysis (after CALLIERI *et al*. 2021, 75, fig. 25).

10.4. The craft production's traces from the central area of *Ardaxšīr-Xwarrah*

During the summer of 2022, I had the opportunity to travel to Shiraz (Fars, Iran) for a short but fruitful research period.[26] One of the carried-out activities was a visit to the site of *Ardaxšīr-Xwarrah* with the opportunity to study a number of archaeological materials in the storerooms.

Among the many stored objects, a mass with traces of glassy material from the site (without a precise archaeological context) is of fundamental importance for the aim of this contribution (Figs. 10.6–10.7). The fragment was collected at the site from the surface of the central area of the city.[27] As mentioned above, the preliminary data from topographic and geophysical survey[28] and the excavation from 2005/2006[29] indicate a series of clues about craft activities in the same area.[30]

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[26] The research project has been carried out thanks to the Erasmus+ project between the University of Bologna and University of Shiraz.

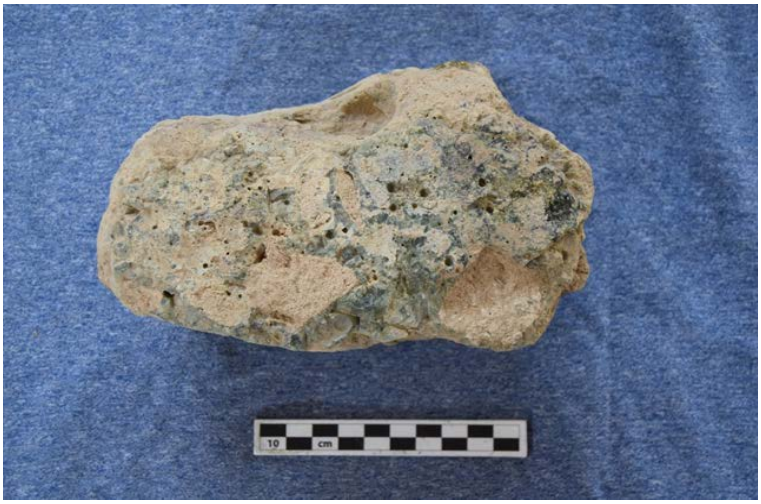

Fig. 10.6. The object from the storage of the *Ardaxšīr-Xwarrah* site institution (photo by the author).

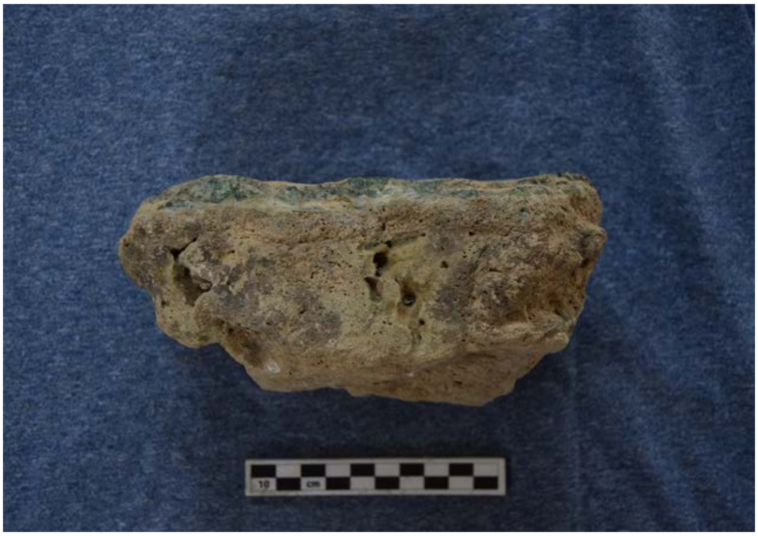

Fig. 10.7. The object from the storage of the *Ardaxšīr-Xwarrah* site institution (photo by the author).

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[27] A personal communication from Mr. A. Kazemi (Firuzabad Site Institution) to Prof. A. Askari-Chaverdi.

[28] Callieri *et al*. 2021.

[29] Cf. notes 11 and 12.

[30] The rediscovery of this object and its characteristics enabled the development of hypotheses inherent to glass production that were presented at ECIS 10 in Leiden in August 2023. The contribution was part of the panel 'History, Archaeology and Environment of *Ardashir-Xwarrah*/Firuzabad: New results from multidisciplinary investigations' organized by Dr. A. Engeskaug and Prof. P. Callieri.

The object preserved at the *Ardaxšīr-Xwarrah* site storerooms has an irregular shape and measures approximately 16.0 x 10.0 x 6.0 cm, characterized by the presence of a clearly visible layer of a green glassy material on one of the surfaces. The object is irregularly shaped and flattened, with holes, poorly preserved surfaces and almost entirely covered with soil encrustations.

Preliminary result of the following XRF analysis performed by P. Holakooei[31] as well as sectioning indicated the presence of multiple layers of different materials. The upper layer shows a material identifiable as glass with high levels of potassium oxide. The underlying layer can be identified as a fired-clayey layer. While the size and irregular shape did not rule out preliminary identification as a glass ingot, the multilayered structure of the object with one glass layer and one fired-clayey layer is completely incompatible with this identification.

In fact, documented examples of glass ingots found in the eastern Mediterranean world from the Late Bronze Age[32] and the Roman period,[33] having wide variety of shapes, [34] all show substantial uniformity in the glassy material, without any presence of fired-clayey layers.

The closest comparison is probably with the object stored at the British Museum[35] collected by C. J. Rich in Babylon between the XVIII and the XIX centuries (Fig. 10.8).

The fragment shows an irregular shape with dimension of 11.80 x 4.50 x 2.5 cm.[36] Despite the smaller dimension in confront of the former object, the British museum example has a green glass layer very similar to the *Ardaxšīr-Xwarrah* fragment. Furthermore, the British museum fragment is characterized by a multilayered structure. In fact, from the online catalogue description and the available photos it is possible to distinguish between a green glass layer and an underlying thin fired-clayey layer. The British Museum object is generally dated from the 3rd to the 9th c. CE.[37] probably because of the green color of the glassy material that is consistent with the Sasanian and Early Islamic productions. What the described find has in common with the British Museum example is multilayered conformation with the presence of a surface layer of glassy material (Fig. 10.9). Future archaeometry analyses may provide additional data regarding the types of materials presented, however, it is possible to preliminarily speculate on the origin of this finding. If usually the presence of a glassy layer should not be considered as incontrovertible evidence of glass production, the preliminary archaeometry analysis[38] highlights the presence of chemical elements consistent with the glass production and hardly interpretable as results of other activities.

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[31] The samples have been taken from the artefact by Prof. P. Holakooei in January 2024. I wish to thank him for sharing this information with me, Dr. E. Matin for organizing the visit of the storeroom and getting sample and Prof. A. Askari-Chaverdi, the then director of Firuzabad for providing the permission for these activities. The occasion proved particularly fruitful as the warehouse manager, Mr. A. Kazemi, showed Prof. Holakooei and Dr. E. Matin other similar large masses with the presence of glassy material also from the site. In addition, other masses have been identified by Prof. P. Holakooei at *Ardaxšīr-Xwarrah* in the central area of the city (HOLAKOOEI, SEVERI forthcoming).

[32] LANKTON *et al*. 2022, 2, fig. 1.

[33] GLIOZZO *et al*. 2015, 3, fig. 2.

[34] STERN 1999, 23.

[35] SIMPSON 2003, 198–199; British Museum Online Catalogue, Museum N° 1825,0503.186.

[36] British Museum Online Catalogue.

[37] Cfr. note 29.

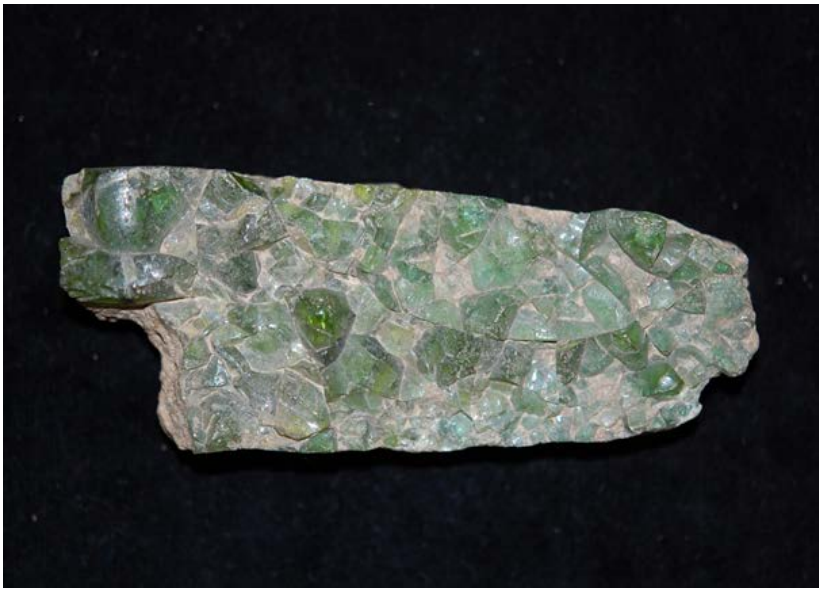

Fig. 10.8. The object preserved at the British Museum (credit British Museum online catalogue).

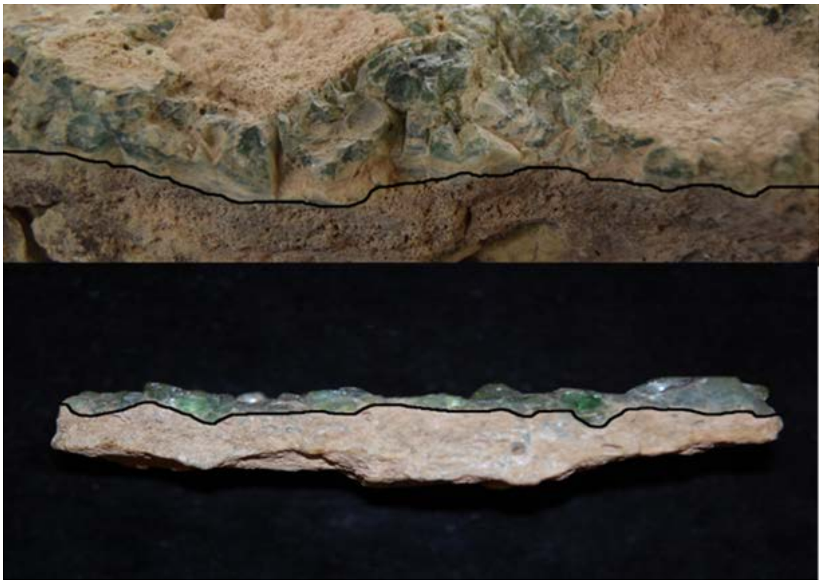

Fig. 10.9. The *Ardaxšīr-Xwarrah* objects (above) and the Babylon object from the British Museum (below). The glassy materials show similarities in colour and texture. The limit between the glassy layer and the clayey layer is sharp in both cases (credit British Museum online catalogue; photo and elaboration by the author).

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[38] HOLAKOOEI, SEVERI forthcoming.

The presence of a layer of vitreous material on top of a clayey layer, as visible from the sections, may allow these finds to be identified as parts of furnace. Nevertheless, due to the complexity of the glass 'industry' it could be useful to deepen the reasoning about this object. In fact, glass 'industry', is characterized by at least two distinct craft activities: glass production or primary glass making and glass processing or secondary glass making.

Glass production is the process of making glass from raw materials. This activity led to the production of a large quantity of glass in the form of big slabs[39] that after cooling down were cut into smaller parts named ingots. Therefore, mass-produced glass, in the form of ingots, was consequently transferred along trade routes, arriving at the secondary workshop i.e. artisanal glass workshops.[40]

This first stage of the glass industry seems to have taken place in rural settings, outside of urban settlements and probably seasonally, following the easier sourcing of raw materials and fuels and the large dimensions of the furnaces to be built. Until now the process of glass production (or primary glass making) of the Sasanian and Sasanian-Pre-Islamic times is attested only in the rural settlements of central and southern Iraq, where several production sites have been identified.[41] Also, in the eastern Mediterranean area (Palestine and Egypt) glassmaking activity seems to have taken place in near to rural or coastal.[42]

Glass processing (or secondary glass making) is the process of making objects from molten glass in the secondary workshop: the glass ingot made during primary production at the primary workshop was melted together with recycled glass (scraps from processing, broken vessels fragments).

Glass processing (or secondary glass making) in Sasanian times has been documented only in the nowadays Iraq at Veh-Ardashir, where excavation has uncovered consecutive overlapping furnaces,[43] at Uruk/Warka where processing waste has been documented,[44] and at Ctesiphon.[45] Glass processing activity, in the eastern Mediterranean, Sasanian world and early Islamic period – on the contrary to glass production of the first stage – seems to have taken place within urban settlements.[46]

The object of *Ardaxšīr-Xwarrah*, due to its small dimension, its flattened surfaces (Fig. 10.7) and the finding position in the center of the city, seems to be part of a tank-furnace for the glass processing activity (secondary glass making). A possible comparison could be made with the fragments of the replica of a Roman tank-furnace (Fig. 10.10) made by archaeologists in 2005 to reconstruct the Roman glassmaking industry.[47]

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[39] FREESTONE, GORIN-ROSEN 1999.

[40] SIMPSON 2014, 204; GORIN-ROSEN 2000, 50.

[41] These sites have been identified by surface surveys (SIMPSON 2014, 204; ADAMS 1965, 146; ADAMS, NISSEN 1972, 223; ADAMS 1981, 213, 259, 288–289).

[42] GORIN-ROSEN 2000, 50.

[43] CAVALLERO 1966, 77–78.

[44] NEGRO PONZI 1984, 33; 1987, 265.

[45] SIMPSON 2014, 204.

[46] GORIN-ROSEN 2000, 50; SIMPSON 2015, 95–96.

Therefore, the object from *Ardaxšīr-Xwarrah* site storerooms could be preliminary[48] identified as the lower part of the inner tank of the furnace, with a strongly heated clayey material with flattened surfaces and an upper glass layer which is the remain from the melting and glass processing activity.

The confrontation with a replica of a roman tank-furnace is due to the lack of structural archaeological data about these facilities in the Sasanian period.

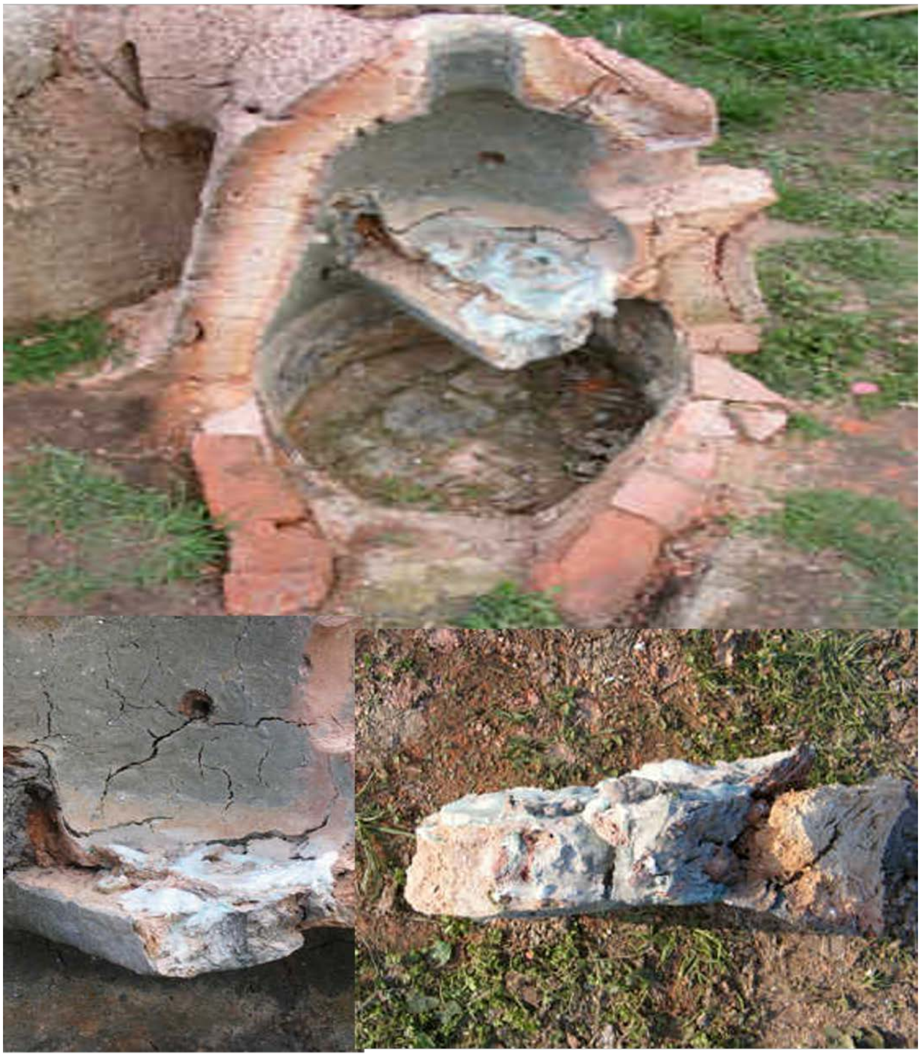

Fig. 10.10. The dismantling of a roman tank-furnace replica with particular of the bottom of the tank with a layer of glass attached to the clayey material (elaboration by the author; credit Roman Furnace Project 2006, http://www.theglassmakers.co.uk/archiveromanglassmakers/furnace27.htm).

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[47] TAYLOR, HILL 2008.

[48] The fragmentary state of preservation of this object does not allow to completely exclude its identification as part of a bigger glass production (primary glass making) furnace (GORIN-ROSEN 2000, 53, figs. 3–4).

10.5. Possible hypotheses considering the available data

The above-mentioned data indicate the probable presence of craft production facilities in the center of the city. It is important to consider that four different archaeological methodologies of collecting data evidenced traces of craft activities in the central area of the site. The archaeological excavations reported layers of wasters of pottery and glass production and maybe identified a productive structure. The topographical survey evidenced the possible presence of a brick-making facility. The geophysical survey collected data interpretable as heated buried remains of furnaces or industrial waste (Area B). The surface materials from the central area, like the object presented in this contribution, as well as other similar fragments under study, are part of craft-work facilities.

Nevertheless, the question about the chronological frame of these activities remains open. The archaeological data from the excavation campaign which took place in the center of the city evidenced the presence of layers of waste materials interpreted as results from pottery and glass production. The stratigraphic relation between these layers and the covered structures (funerary complex and Tirbal) gave a *terminus post quem* for the craft activities. The accumulation of layers of waste should have taken place after the destruction processes of the two structures which has been hypothesized after the reign of Shapur I (240–270/272 CE) for the funerary complex[49] and before the early-Islamic period for the Tirbal.[50] In the light of the absence of a reliable stratigraphic sequence, the enigmatic dating of the funerary complex and the absence of data from the archaeological materials, the most conservative dating for the accumulation of these layers of wasters and consequently for the craft activities, seems to assume from the end of the Sasanian period.

The preliminary identification of the object preserved in the storeroom as part of a tank-furnace for glass processing activities and its position in the city center should be seen in accordance with the stratigraphic data from the excavation (layers of glass wasters) and possibly with the geophysical data collected in the survey of Area B, allowing to hypothesize glass processing activities in the central area.

Nevertheless, the question about the extension of these craft activities remains open. The study of the layers of glass wasters must be carried out in order to collect data about the quantity and typology of glass wasters. In fact, only the identification of the type of glass wasters can confirm the presence of the glass processing activities.[51]

The quantification of all glass kiln fragments from the central area of the city and those in the warehouse is of paramount importance. Archaeological and archaeometry studies of these objects will allow their characteristic elements to be recognized leading to their classification. Comparison will make it possible to identify the physical extent of the activities that generated them. Similarly, the comparison with published materials could possibly allow to recognize the time span of the activities. The final results of the study should enable a more complete definition of the horizon of glass making activities in *Ardaxšīr-Xwarrah*.

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[49] JA'FARI-ZAND 2017, 277–283. This chronological attribution is based on historical and iconographical data from the paintings and from the archaeological material from the fillings of the troughs. Nevertheless, as reported by Huff (HUFF 2008, 49) and by Compareti (COMPARETI 2011, 16 n. 45) the ceramic material should be dated to the post-Sasanian period.

[50] HUFF 2008, 49; MITTERTRAINER 2020, 85.

[51] FREESTONE *et al*. 2015, 46–49.

The presence of a brick kiln in the center of the city should be tested with a stratigraphic excavation to verify the actual presence of this craft production and its chronological horizon.

Similarly, stratigraphic excavation is desirable for understanding Area A of the geophysical study in order to collect stratigraphic data from the south-western limit of the city.

10.6. Conclusions

The importance of *Ardaxšīr-Xwarrah* is well evidenced by its original town plan, which is characterized by a symbolic dimension that carries forward the Sasanian royal ideology of cosmic order. Beneath the symbolic dimension of the city, as evidenced by several studies, its foundation and layout meet the needs of defense, water supply, agricultural development, and trade connections.

The more than 1,000 years of occupation of the site testify to this pragmatic and careful planning, where life must have been vibrant and prosperous. The preliminary data on possible craft production observed in this paper aimed to highlight the wealth of as-yet unstudied archaeological information at *Ardaxšīr-Xwarrah*. Even if agricultural work on the plain has eroded the integrity of the city's archaeological contexts, data from non-invasive methodologies, excavations and surface finds proved the presence of ancient craft activities in the central area of the city. The presence of traces of craft activities in the physical and symbolic center of one of the Sasanian capitals[52] is a sign of a probable loss of this symbolic and ideological value. This consideration accords well with the chronological data which, however preliminary, seem to indicate the exercise of these activities from the end of the Sasanian period. Although questions regarding the physical and chronological extent of these activities remain unanswered, they represent a further moment in the life of the city, subsequent to the founding and the installation of the funerary complex. In addition, the presence of craft activities might suggest an active and vibrant community.

Future studies of these activities will provide an understanding of their actual duration and complexity, hopefully providing useful insights into the evolution of the early Sasanian capital.

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[52] SHENKAR 2018.

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11. Tol-e Ajori Gate: New Insights from Robbery Pits and a Comparative Analysis with Estakhr

Serenella Mancini

Abstract

This study deals with the final phase of the Tol-e Ajori monument, a crucial site for understanding the Achaemenid landscape in the Parsa plain and its diachronic evolution. The investigation focuses on the analysis of the ceramic fragments recovered from numerous robbery pits, which significantly damaged the monument's structure. The ceramic assemblage, extensively damaged and fragmented, is mainly datable to the Islamic period (9th–13th centuries). A comparison with the ceramic corpus from Estakhr, a nearby site with a rich and complex history, reveals significant similarities and analogies in both unglazed and glazed wares, particularly in the moulded relief and monochrome wares. These similarities suggest a close connection between the looting at Tol-e Ajori and the Islamic-period development of Estakhr.

Keywords

Tol-e Ajori, Ceramic *corpus*, Robbery pits, Estakhr.

11.1. Introduction

The monument of Tol-e Ajori represents an extraordinarily important pivotal point and was a crucial element in the development of Iranian archaeology in the Parsa plain and beyond, particularly concerning the Achaemenid period. This work focuses on the final phase of the history of this intriguing monument, and specifically on discoveries from the excavation of several robbery pits which document significant and extensive looting activities at the site. The numerous robbery pits[1] uncovered caused significant damage to the structural integrity of the monument, removing a large portion of the baked brick sections from the main walls.[2] This presents serious challenges for archaeological interpretation and subsequent conservation efforts. In this context, the analysis of ceramic fragments provides valuable information for framing and contextualizing the chronological aspects related to these activities.

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[1] Askari Chaverdi *et al.* 2017, 208–209.

[2] Askari Chaverdi *et al.* 2017, 206–219.

11.2. The archaeological site of Tol-e Ajori

The Tol-e Ajori monument, excavated by the Iranian-Italian Joint Archaeological Mission led by Alireza Askari Chaverdi and Pierfrancesco Callieri, is located 3.5 km west of the Persepolis Terrace (Takht-e Jamshid) in the Parsa plain (Fars, Iran). It is a remarkable example of early Achaemenid architecture and serves as a pivotal site for understanding the evolving urban context of Persepolis and its surroundings.[3] Its discovery and subsequent excavation (from 2011 to 2023) fundamentally reshaped scholarly perceptions of the site's Achaemenid history, which expanded beyond the long-held focus on the monumental terrace of Persepolis.[4] These investigations, along with the geophysical surveys conducted by the Iranian-French mission in Persepolis and studies in the Persepolis West area carried out by the Iranian-Italian Joint Mission since 2008, revealed the presence of a complex and extensive urban landscape that developed, at least in part, even prior to the construction of Darius I's Monumental Terrace and is characterised by a diffuse occupation of the area, featuring residential and artisanal zones interspersed with gardens and open spaces.[5]

The Tol-e Ajori monument is a monumental gate strikingly similar to the Ishtar Gate of Babylon, characterized by meticulous construction, glazed brick decoration, and Elamite and Babylonian cuneiform inscriptions. It provides not only unique architectural insights into early Achaemenid building practices but also critical chronological and cultural information.

The complex was abandoned, perhaps even before it was finished, most likely before the severe damage caused by a strong earthquake, as indicated by the visible cracks in the structures *in situ*,[6] the collapse of parts of the gate structure, and the presence of numerous fragmented glazed bricks, alongside additional findings from the secondary occupation layer. Following the earthquake, the site experienced extensive looting, corroborated by the discovery of several robbery pits. This looting significantly contributed to the destruction of the monument's structure.[7]

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[3] Ongoing research in the broader Persepolis plain, conducted by the Iranian-Italian Joint Archaeological Mission, is enhancing our understanding of the Achaemenid urban fabric, its relationship with the monumental core of Persepolis, and the development of imperial urbanism in the region (ASKARI CHAVERDI *et al.* 2020; COLLIVA, MATIN 2023; 2024).

[4] ASKARI CHAVERDI, CALLIERI 2020.

[5] BOUCHARLAT *et al.* 2012; GONDET 2018; CALLIERI 2022; MATIN forthcoming.

[6] BERBERIAN *et al.* Forthcoming.

[7] ASKARI CHAVERDI, CALLIERI 2020.

11.3. General characteristics and issues of the pottery *corpus* from Tol-e Ajori: the methodological approach

The ceramic *corpus* found during the excavations carried out by the Iranian-Italian Joint Archaeological Mission in Tol-e Ajori is an extremely diverse and fragmented assemblage, covering a wide chronological range from the fourth millennium BCE[8] to the Islamic period. Unfortunately, the majority of the ceramic material recovered from both the primary and secondary occupation contexts of the monument is notably fragmented and altered. Furthermore, much of this material pertains to common ware, predominantly lacking any coatings and exhibiting extremely fragmented and significantly deteriorated conditions. These characteristics pose challenges in achieving precise chronological attribution for the associated archaeological contexts. For these reasons, in this initial phase, the study of the *corpus* concentrated on the analysis of exclusive diagnostic ceramic fragments.[9]

11.4. The ceramic assemblage from the robbery pits

The same conservation and preservation characteristics are also evident in the ceramic material from the filling of the robbery pits. The diagnostic fragments can be mainly attributed to the Islamic period and belong to both the glazed and unglazed classes.[10]

Regarding the unglazed class, small fragments are probably attributable to medium jars or jugs made of a moderately compact fabric characterized by a light orange colour and small mineral inclusions, occasionally featuring incised comb decoration. In contrast, small fragments that likely belong to jugs exhibit a compact, light-coloured fabric. This same fabric was used to produce objects that were modelled and decorated with moulds (Moulded Relief Ware, 9th–13th century CE). Traces of the joints where the two halves of the object were assembled and a clay band was used to join the two halves were found in some fragments. The fragments belong exclusively to closed forms, likely jugs. The decorative motifs, which are unfortunately sometimes difficult to identify, consist of individual geometric and/or vegetal elements used as backgrounds or incorporated into lozenges, medallions, or bands (Fig. 11.1).

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[8] The phase attributed to the seismic event that affected the monument, along with the subsequent collapses and accumulations, includes extremely interesting secondary deposition materials. Among these findings, there are fragments of 'bevelled rim bowls' and 'Teimuran ware' sourced from the core of the monument's massive walls, which were built with raw bricks measuring approximately 5 centimetres in thickness. These fragments were likely in the clay used to create the raw bricks. The 'bevelled rim bowl' fragments, dating back to the Uruk Jemdet Nasr period of the 4th millennium BCE, are made from a reddish-orange paste, known for its typical fragility and abundance of plant inclusion traces (BEALE 1978, 289; MILLARD 1988; LIVERANI 2009, 126–127). Meanwhile, the 'Teimuran ware' fragments, dating from 1800 to 800 BCE, exhibit a medium-coarse red paste and feature characteristic monochrome black decorations, including geometric horizontal lines and occasional triangles on their outer surfaces (VANDEN BERGHE 1959, pl. 59; JACOBS 1980, 79–83). Additionally, several fragments that likely belong to 'carinated bowls' preliminarily dated to the post-Achaemenid period, were found, some showing traces of a clay coating (ASKARI CHAVERDI, CALLIERI 2016, 75–117; BATTISTI 2017, 143–160).

[9] The term 'diagnostic' refers to any fragment that exhibits significant technological, morphological, and/or decorative characteristics. Each diagnostic fragment was analysed based on various characteristics, including fabric composition, modelling techniques, surface treatments, coatings such as slip and/or glaze, and decorative techniques. Unfortunately, the morphological study of this material has been significantly compromised, as the fragmentary nature—most fragments belong to wall fragments measuring between two and four centimetres—has often limited detailed morphological analyses.

[10] The complex international situation that has prevented the author from returning to Iran in recent years has made it impossible to provide an exact percentage quantification of the findings related to the two classes. However, a significant prevalence of unglazed ceramic materials was observed.

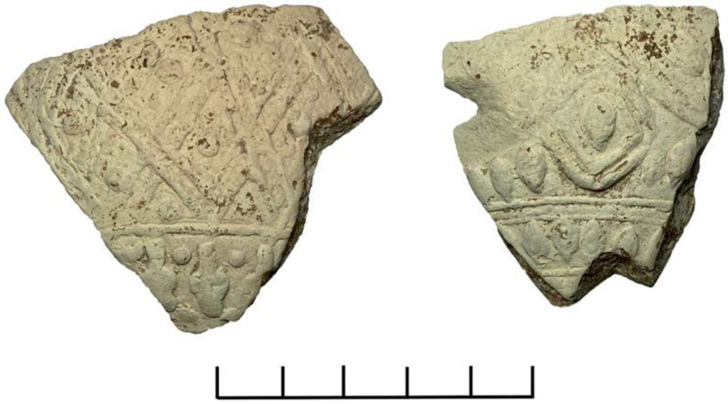

Fig. 11.1. Fragments of Moulded Relief Ware from robbery pits of Tol-e Ajori (photo: M. Hoseini).

As for the glazed ceramics, fragments with monochrome transparent green or turquoise glazes have been found (Monochrome Ware). The fragments with monochrome transparent green glaze sometimes also have a white slip under the glaze. The fragments of this ware mainly belong to open forms, probably bowls.

The finding of two fragments of Colour Splashed Ware (9th–10th century CE) is also interesting (Fig. 11.2). These wheel-made fragments are characterised by a compact orange fabric and have a thick layer of white slip visible in section, a transparent colourless glaze, and polychrome (yellow/green and brown) splashed decoration, unfortunately significantly altered. The wall fragments are part of an open form, likely a bowl.

11.5. Comparisons with the pottery *corpus* from Estakhr

The ceramics from the robbery pits of Tol-e Ajori show significant similarities and analogies with the pottery *corpus* from the nearby site of Estakhr. The latter, situated in the Marvdasht Plain of Fars Province and located approximately 7 km from Tol-e Ajori, is a significant archaeological site with a rich and complex history. Its strategic location at the intersection of ancient trade routes facilitated its development as a major urban centre throughout various historical periods.

The *corpus* of ceramic material was significant and substantial, allowing for the first comprehensive analysis of the site's ceramic production and offering new insights into the chronology, technological practices, and socio-economic context of Estakhr during the Islamic period.[11]

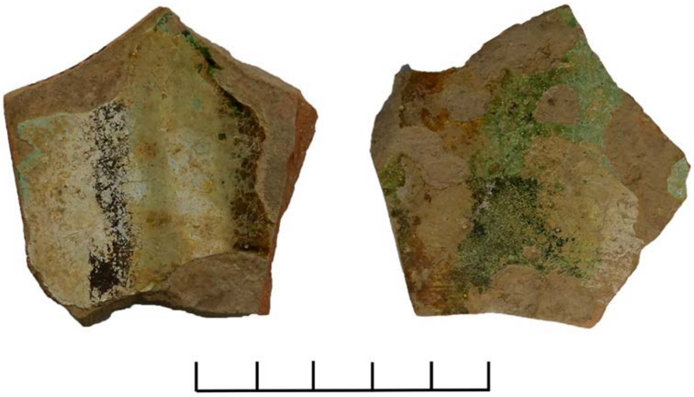

Fig. 11.2. Fragment of Colour Splashed Ware from robbery pits of Tol-e Ajori, internal and external surfaces (photo: S. Mancini).

The study of the Estakhr pottery *corpus* reveals substantial local production throughout the Islamic period, supported by the finding of tools related to pottery kilns and the manufacturing process.[12]

Analyses performed on a targeted sampling[13] helped refine the chronological sequence of Estakhr's occupation, indicating a continuous presence from the 9th to at least the 13th century CE and challenging notions of a brief Islamic occupation, suggesting instead a prolonged urban settlement characterized by a diverse economy and population.[14]

The same Moulded Relief Ware found in the looting pits of Tol-e Ajori is also attested at Estakhr (Fig. 11.3). The latter site reveals evidence of significant local production,[15] highlighted by the discovery of numerous mould fragments used for shaping and decorating these objects (Fig. 11.4). Estakhr's production demonstrates two distinct levels of quality. The Tol-e Ajori fragments, though often poorly preserved and with damaged decoration, correspond to the finer, more meticulously crafted Estakhr ware,[16] characterized by a compact, light beige/grey fabric, thin walls, and highly refined decorative motifs.

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[11] After the archaeological researches and studies of the documentation conducted by the Chicago Oriental Institute in the 1930s and 1970s (SCHMIDT 1939; WHITCOMB 1979, 2003–2004, 2008) respectively, an excavation campaign was carried out in 2012 (FONTANA 2018) and another campaign was devoted to the study of the pottery finds in 2015 by the joint Italo-Iranian Archaeological Mission directed by A. Ali Asadi and M. Vittoria Fontana (for the study of the ceramics, see FONTANA *et al*. 2016; MANCINI 2018; MANCINI 2020a; 2020b).

[12] RUGIADI, COLLIVA 2018; FONTANA *et al*. 2016; FONTANA 2018; MANCINI 2020a; 2020b.

[13] Petrographic and technological analyses, combined with stylistic features, demonstrate several locally made wares, some exhibiting unique decorative traditions and technological choices, indicating an independent ceramic production culture. Moreover, imported wares clearly illustrate Estakhr's significant integration into wider trade networks.

[14] High-quality ceramics from Iraq and the Far East were also found, indicating connections through both land and maritime routes which greatly contributed to the region's economic prosperity and cultural exchange (MANCINI 2020a; 2020b).

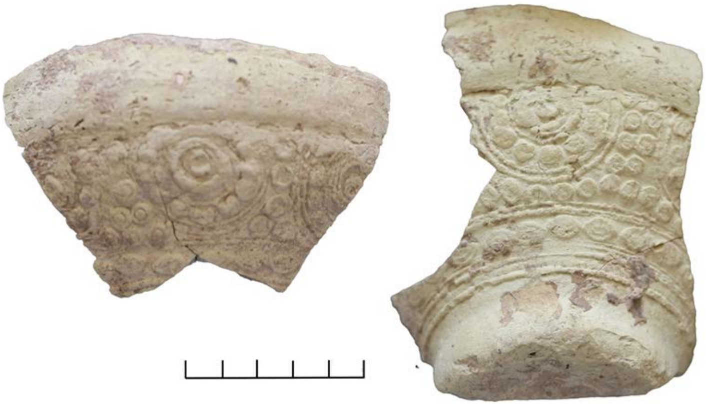

Fig. 11.3. Fragments of Moulded Relief Ware from Estakhr (photo: S. Mancini).

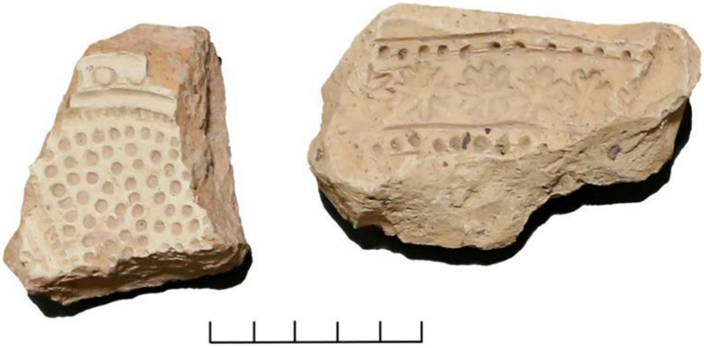

Fig. 11.4. Pottery moulds with carved and stamped motifs from Estakhr (photo: S. Mancini).

In relation to glazed ceramics, the striking similarities in terms of technological characteristics and fabrics between glazed ceramic fragments from Tol-e Ajori and those from Estakhr underscore a significant connection. This is evident in the numerous monochrome ware fragments (transparent green or turquoise glazes, Monochrome ware) and 48 fragments of Colour Splashed Ware found within the Estakhr *corpus*.[17]

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[15] NOVAČEK 2009; RUGIADI, COLLIVA 2018; ASADI 2018; MANCINI 2018; 2020a, 576–577; 2020b.

[16] The other type is made from a more 'coarse' and less refined compact light orange fabric. In most cases, the walls lack uniform thickness, with poorly finished joint areas and less precise ornamentation. While establishing a connection between these two types is challenging, the second may represent a form of imitation of the first or perhaps a product aimed at a different market segment (MANCINI 2020a: 576–577).

11.6. Conclusions

The study of the ceramic material from the Tol-e Ajori robbery pits, in conjunction with the comparative analysis of the Estakhr *corpus*, significantly advances our understanding of the monument's later phase and its broader historical context. The presence of identical ware both glazed and unglazed at both sites, and the probable inclusion within the Tol-e Ajori robbery fill of fragments directly originating from Estakhr local production, strongly indicates that the looting was likely driven by the new development of the Estakhr landscape during the Islamic period, and a consequent demand for readily available building materials.

This close connection between the two sites has enabled the assignment of a precise chronological framework to the major spoliation phases at the Tol-e Ajori site, adding a valuable new piece to our understanding of the complex diachronic evolution of the area's archaeological landscape. We are confident that further research on Tol-e Ajori and the wider Persepolis plain can contribute to a more nuanced understanding of the urban development in the area in the different periods.

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[17] Mancini 2020a, 578–579; 2020b.

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PARTE III

TURIN RESEARCH UNIT

MAN, LANDSCAPE, AND SOCIETY IN ARSACID AND SASANIAN ELYMAIS

Edited by Vito Messina

12. Human–Environment Interaction in Elymais

Vito Messina

Abstract

This research, conducted as part of the project Eranshahr, *focuses on human-environment interaction in ancient Elymais from the Seleucid to the late Parthian period. By integrating material evidence and spatial data, a unit of the University of Torino has investigated the anthropisation processes, natural resource exploitation, connectivity and resilience dynamics that shaped the ancient landscape of the region. Our study aimed to provide a comprehensive understanding of human interventions, based on the analysis of settlement patterns, and to facilitate further comparison with textual evidence to better understand territorial policies if possible. Focusing on the dualistic geomorphology of Elymais, we collected and merged archaeological and terrestrial data to create a shared GIS environment and produce multi-scale thematic maps. Spatial analysis focused on the plains of Susa and Shushtar, as well as the highland region of Izeh/Mal-e Mir and the terraced sanctuaries there located, which are seen as visual markers of power. Our research offers a nuanced perspective on the interplay between human agency and environmental factors in ancient Elymais, emphasizing the region's settlement dynamics.*

Keywords

Elymais, human-environment interaction, interpretive models, spatial analysis.

The research conducted by the University of Torino as part of the project *Eranshahr* aimed to study the interaction between man and the environment in ancient Elymais, from the Seleucid to the late Parthian period. Such interaction has been analyzed through the study of material evidence and the detection of traces of human intervention in the ancient landscape. This was done to provide a preliminary assessment of the anthropisation processes, natural resource exploitation, connectivity potential and resilience dynamics associated with landscape transformation (where detectable). Our research also aimed to provide information for further comparison with textual evidence, as the latter has often led to historical speculation on the territorial policies pursued by the various authorities that alternated in the government of the region.

Textual and material evidence indicates that Elymais (a Greek form derived from the more ancient name Elam) was the most prominent political and cultural entity attested along the Zagros range, between Mesopotamia and Iran.[1] The heartland of this entity extended from the lowlands to the highlands of present-day Khuzestan (southwest Iran).[2] Epigraphic and historical records from various periods allow scholars to conceive Elam/Elymais as a political formation – or confederation of political formations – that interacted with other major power systems of West Asia from at least the 3rd millennium BCE. With the establishment of supranational imperial systems in the 1st millennium BCE, control of the region was exercised by centralized administrations and apparatuses, after having been intermittently claimed by local powers and dynasties. The importance of the region was due to its privileged location – a bridge between the Mesopotamian plain and the Iranian plateau – and to its geomorphology, characterized by both plain and mountainous environments.

As a region at the intersection of power systems and as a political entity in its own right, Elam/Elymais offers a unique perspective for the study of territorial policies and human-environment interaction, especially thanks to its geomorphological dualism.[3] The discovery of archaeological sites of various sizes and importance, inhabited for millennia in both plain and mountainous areas, is also noteworthy, as it can be an indicator of the dynamics of settlement in the long durée. Among the many sites, two clearly stand out as pivotal centers of this dual environmental system: Susa (almost completely undisturbed by modern occupation), in the lowlands, and Mal-e Mir (totally overlapped by the modern town of Izeh), in the highlands. The geomorphological dualism of Elymais can also justify the choice of tools for selective settlement and exploitation strategies adapted to different environmental contexts. The human presence in these two contexts has been studied thanks to interpretive models aimed at facilitating the understanding of settlement patterns, although these models are not always fully affordable, as summarized below.

The lowlands and highlands of Khuzestan show differences in landform, geological setting, climate and ecological niches. The lowlands, which extend between the plains of Susa and Ram Hormuz, are geologically an extension of the Mesopotamian alluvium. They are now characterized by arid, semi-arid and arid regions, with remarkable variations in rainfall from area to area and from year to year. The situation does not seem to have been much different in ancient times. The lowlands benefit from the water supply of five main rivers, the Karkeh, the Ab-e

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[1] For an overview of historical and archaeological evidence, see POTTS 2016, 47–427, and the bibliography cited therein. Relationships with Mesopotamia have been particularly emphasized in literature because of the analogies that appear in material evidence (POTTS 1993, 382).

[2] In modern geographical terms, ancient Elam/Elymais corresponds to the province of Khuzestan but also to parts of the provinces of Fars, Kohgilu-ye va Boyer Ahmad, Kerman, Luristan and Kurdistan; in any case, Khuzestan can be regarded as the heart of this ancient political formation.

[3] E.g. AMIET 1979.

Deiz, the Karun, the Marun and the Zuhreh (or Hindian), which favored and still favor the growth of vegetation. The water supplied by the rivers was also used for regimented agriculture, thanks to the opening of a network of canals.

The highlands, which initially rise to about 800 m above sea level and then reach an average of 1200 m at the edge of the plateau, belong to the Bakthiari chain (the southern branch of the Zagros system) and form a series of parallel ridges and narrow gorges from north-west to south-east. This tectonic chain does not offer large areas of land suitable for human settlement, but it has been travelled extensively since ancient times. Gorges, often covered by colluvial deposits, alternate with small intermountain valleys, sometimes of alluvial origin, such as the Izeh plain. The intermountain valleys were, and still are, a unique opportunity for human settlement in such an environment,[4] even though their morphological characteristics are different from those of the lowlands and their surface area is much more limited: the mountain valleys have different soils from the large alluvial plains and do not benefit from the same water supply (only the river Karun meanders in the mountains to reach the lowlands). Instead, autumn rains can be relatively intense, allowing for unirrigated or low-irrigated crops.

The dualism of Elymais was thus defined by the existence of different ecological niches, with the possibility of different types of crops and, presumably, different ways of resource procurement and management, and of land-catching and -use.

Like other areas of ancient West Asia, Elymais has been the object of landscape studies primarily based on the creation of interpretive models. The use of models to understand settlement dynamics in the most affordable way has characterized most of the research on historical landscape to date: it must be said, however, that these models were particularly suited in areas of alluvial origin (such as Mesopotamia). The alluvial lowlands of Elymais have therefore also been studied. Alluvia provide a plethora of information on human-environment interaction. Along with the easy access to water resources for regimented agriculture, which favored human settlement and the development of complex social structures, the geomorphological setting of alluvia, with abundant clay deposits, provided unlimited quantities of plastic material for production activities and building purposes; furthermore, the watercourses flowing in alluvia were used as a network for the accelerated movement of people and things, fostering connectivity.

Alluvial environments were hence far more suitable for human settlement and urbanization than other environmental contexts or ecological niches (especially mountainous environments). For this reason, data on ancient landscape are much more abundant here. Moreover, the geomorphology of alluvial plains facilitates data acquisition: in alluvia, traces of the human presence and intervention over time are easy to detect through ground surveys and remote sensing observations because clay deposits can preserve anthrosols and signs of land transformation effectively for very long periods (even millennia). In this environment the perception of anthropic actions is clear, as are the changes in hydrological settings and the high visibility of archaeological sites. Anthropic actions and modifications of landscapes can be reconstructed thanks to the recognition and study of paleo-riverbeds, the remains of canals that are now exhausted, or ancient road systems. Paleo-riverbeds and canals can be recognized by their deposits, ancient roads can be identified thanks to the residual traces of holloways. The high visibility of archaeological sites is the result of intense processes of stratification resulting from the accumulation of clay as a building and production material.[5] For this reason, interpretive models have been widely used in this context.

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[4] See Giusto in this volume.

This is evidenced by pioneering studies on human settlement,[6] which encouraged the creation of interpretive models of large-scale settlement dynamics.[7] In these models, the principles of the so-called socio-natural resilience and of the network theory have been applied on a territorial basis, thus advancing older theories.[8] In general, these models process data on the assumption that the expansion of ancient sites and – by induction – their population growth can be explained by the complex nature of their political forms of governance, and that processes of settlement's downsizing and depopulation must instead be linked to migratory movements or to the collapse of political powers.[9] A well-established tradition of landscape studies has examined material evidence and traces of human intervention in the lowlands of Khuzestan.[10]

Such an approach has recently undergone a critical review, which has highlighted significant deviations in the margin of error attributable to the progressive dimensional variation of archaeological sites, with implicit consequences in the definition of settlement dynamics.[11] In addition, the definition of chronologies and cultural horizons within which these dynamics have been theorized, and the paradigmatic use of material evidence that is in fact very peculiar, if not residual, have been repeatedly criticized. Finally, it must be emphasized once again that interpretations based on settlement models can be misleading if one considers that data acquired in alluvial environments and data acquired in other contexts are qualitatively and quantitatively incomparable. A good example of the contradictions that arise from the use of interpretive models is provided for Khuzestan by the study conducted by Robert J. Wenke on settlement patterns of Susiana in Parthian and Sassanian times.[12] In this work, which remains a seminal approach to the ancient landscape of the region, statistical analysis of surface materials, almost exclusively represented by ceramic assemblages, is functional to define settlement dimensional hierarchies and dynamics. This has led to the creation of settlement models that emphasize the existence of imperial investments for the land transformation and use.

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[5] Clay has been used as building material in alluvia since very ancient times: this originated the tradition of mudbrick and earthen buildings, which facilitated the stratification of settlements and shaped archaeological sites that can rise as mounds for several meters from the surrounding flat terrain, making them well visible to surveyors; the use of clay in the making of daily-life objects, such as pottery and terracotta figurines in particular, made possible their mass production and, consequently, their presence in large quantities, as surface and/or stratified materials, in correspondence with archaeological sites or in their proximity. In addition, the archaeological soils of alluvial settlements are different in color and grain size from soils of pedogenetic origin, being rich in anthropogenic deposits.

[6] These studies have emphasized the importance of social interactions and human impact on ecology and landscape in the evolution of great civilizations. We owe this tradition primarily to Robert McC Adams (ADAMS 1965; 1972; 1981)

[7] Thanks to the observation of anthropogenic deposits and surface materials assemblages, these studies made it possible for the first time to study archaeological sites and their diachronic or synchronic evolution (ADAMS 1966): this was primarily thanks to the experience already gained in human and social geography.

[8] The starting point of this approach was Christaller's Central place theory. In addition, models of connectivity and resilience have been created in recent decades. See the recent collection of studies in FISHER *et al.* 2009, and the works therein cited.

[9] See e.g. ALDEN 1987, 157–170, for a possible interpretation of the downsizing of Susa in the proto-Elamite period.

[10] Among the several ground surveys conducted in the lowlands of present-day Khuzestan, the one conducted in 1948 by Donald McCown in the plains between Ahwaz, Behbehan and Ram Hormuz, and published by ALIZADEH 1985; 2004, is worthy of note. Among the first studies on sites' hierarchy and the formation of states, the works of Gregory A. Johnson and Henry T. Wright deserve consideration (JOHNSON 1973; 1987; WRIGHT, JOHNSON 1975, 267–289). Further on, JOHNSON 1987, 107–139, defined a hierarchical system in Susiana characterized by the competition between Susa and Chogha Mish.

If some evidence seems to support this view and allows one to share, at least in part, the possibility of intervention policies in land transformation,[13] the relationship between settlement hierarchy and the statistical recurrence of surface pottery has instead raised many doubts, as it is impossible to ascertain whether the dimensional variations of a settlement can be confidently traced on the basis of the occurrence of surface records.[14] In any case, the lowlands of Khuzestan have been widely investigated by landscape archaeology.

The highlands, on the other hand, have not been extensively surveyed, with the exception of the 1976 survey conducted by the University of Michigan and the Iranian Center for Archaeological Research under the direction of Henry T. Wright.[15] Such a survey did not initiate a series of studies comparable to those in the lowlands: the quality and quantity of the data collected there did not allow the creation of models that were considered as affordable as those developed for settlement patterns in Susiana or in other plains of Khuzestan. Data acquisition in mountainous environments is much more complex, as these environments are characterized by the presence of lithosols and orogenic formations. In these environments, the presence of paleo-riverbeds or exhausted canals is not only less common, but also more difficult to detect; the building material normally used, irregular undressed stones, practically leaves no depositional traces.[16] The stratigraphy at these sites is thus extremely compressed in favor of the layers close to the surface. As a result, surface materials are detectable in far lower percentage and in concentrations much less evident than in archaeological sites of alluvia. Finally, anthropogenic deposits hardly remain stable on lithosols. In the highlands, archaeological sites are therefore characterized by a much lower visibility and are barely identifiable even by extensive ground surveys.

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[11] DRENNAN, PETERSON 2004, 543.

[12] WENKE 1975-1976; 1981; 1987.

[13] See Foietta in this volume.

[14] It has been observed that surface pottery occurs in percentages and clusters that often do not correspond to those of stratified pottery, and that surface assemblages may only partially, and sometimes misleadingly, represent the actual artefact production of a settlement (SUMNER 1988, 179).

[15] This survey covered the areas of Dasht-e Gol and Iveh, and particularly the Izeh plain (WRIGHT 1979). Based on an extensive approach and published in the years immediately following its conclusion, this work remains of great importance for those approaching the study of ancient mountain settlements of Elam/Elymais.

[16] For obvious reasons, once carved or roughly cut, stones are reused continuously in the construction or reconstruction of buildings. If a building needs restoration or it must be reconstructed, stone

In a processual approach, the cross-analysis of the dimension and location of sites leads to the definition of statistics used to understand settlement dynamics, with particular emphasis on comparisons between sites of different hierarchy within the same regional system or in interregional systems.[17] It must be noted, however, that such an analysis can only be carried out on sites of high visibility, i.e. sites more easily identifiable in alluvial plains.[18] The same process cannot be followed for areas or environments characterized by low visibility of archaeological occurrences. In fact, the identification of ancient settlements is largely based on the classification of archaeological materials associated with anthropogenic deposits. Sites with low visibility, such as mountainous sites, make it difficult to distinguish anthrosols from pedosoils. It follows that interpretive models are not equally affordable in contexts of low visibility.

Aware of the limitations and contradictions in the use of models, we aimed at a systematic collection of spatial data and of information on materiality as a basis for the interpretation of settlement patterns. Our research unit collected archaeological and territorial data on Khuzestan to create a shared GIS environment and derive multi-scale thematic maps and models of discrete areas, both in the lowlands and in the highlands. Spatial analysis was then focused on the plains of Susa and Shushtar for the lowlands and on the region of Izeh/Mal-e Mir for the highlands, as these were identified as the main regions of interest based on information from archaeological research to date. In the highlands, the areas of great terraced sanctuaries have also been analyzed, as we consider them to be visual markers of power and middle grounds for social negotiations.[19] The data collected during ground surveys carried out by the *Iranian-Italian Joint Expedition in Khuzestan* (around Izeh and in the valley of Shami) were likewise merged with pre-existing documentation into the GIS purposely created.

Given the geomorphological dualism of the territory examined, it was decided to create multi-level and multi-temporal systems to facilitate comparison between the patterns identified in both the lowlands and the highlands. Materiality was likewise studied in a comparative manner: surface and stratified records, both published and unpublished (above all pottery), were thus examined in terms of the differences or

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building material is procured thanks to the dilapidation of pre-existing and no more used structures (including foundation levels): this was made with the purpose of finding as much material as possible in the easiest way.

[17] See DRENNAN, PETERSON 2004, 533–549 on settlement patterns in China, Iran, Peru, and Mexico.

[18] On the effectiveness and limitations of qualitative surveys of archaeological sites in the Near East and Iran by remote sensing, see the recent works of ALTAWEEL 2005 and MENZE *et al.* 2006. On the affordability of interpretive models to understand settlement patterns and conducting spatial analysis see MESSINA 2020.

[19] On the middle grounds see WHITE 1991.

analogies revealed by their occurrence in the two different environments. One of the results of this approach is the production anew of digital archaeological cartography and the creation of models that can, at least in part, overcome traditional tools of historical geography or hierarchical definition. Rather than postulating specific policies, which is mere speculation in the absence of indisputable or at least verifiable historical records, we have tried to highlight processes of land transformation at a macro-systemic level, in order to deduce human-environment interaction and human intervention through the effects they have produced.

The analysis of pre-existing terrestrial data and remote-sensing observations purposely conducted on selected areas led our unit to the identification of a discrete number of archaeological sites in the lowlands of Khuzestan (in addition to those already scrutinized), especially in the plains of Susa and Shushtar, along with the reconnaissance of still unknown paleo-canals and -riverbeds. [20] In such an environment, settlement patterns highlight the dependence of anthropization on human capacity to manage water and waterways, with cause-effect feedback between human intervention and the hydrogeological setting. In both the plains of Susa and Shushtar the centuries leading up to the turn of the Cristian era were characterized by an increased propensity to find wider portions of land for intensive agriculture. This is evidenced by the ramified presence of canals that allowed a regimented distribution of water away from medium or large urban centers. In these intensively cultivated areas only small settlements can be identified (occasionally centers of medium size), which were likely established to manage the water supply to cultivated fields. It remains to be ascertained whether the need for an increased agricultural production satisfied the need to supply large urban centers or mega-sites like Susa and, later, Shuhstar, but this seems highly probable. This leads us to believe that, starting from a predominant pattern based on subsistence, the settlement strategies reveal, from the half of the 1st millennium onward, the tendency to increase the number of sites but, as far as can be seen, not of the population density proportionally, given the high concentration of inhabitants only in large centers. However, this tendency has had a significant impact on the landscape, characterized by land transformation and habitat fragmentation, mainly as a result of large-scale irrigation works that have radically altered the pre-existing hydrogeological setting.[21] This is quite measurable for the Seleucid period, but particularly evident from the Parthian period onwards.[22] If the existence of imperial investments tout court remains therefore speculative, specific interventions by local or centralized authorities for water management in the lowlands beyond ordinary maintenance can be convincingly inferred as a response to long-term dynamics of intensive settlement and land use.

In order to address the settlement dynamics in the highlands and to make a comparison with the patterns identified in the lowlands, pre-existing data, remote sensing observations and data obtained directly on the ground through selective surveys were integrated into the same GIS environment.[23] The geomorphology of the highlands has led to the concentration of urban settlements (rarely of large size) in intermountain valleys, but small settlements are also randomly scattered on mountain offshoots or in narrow valleys. In addition to low-irrigated agriculture in the intermountain valleys, non-irrigated cultivation, pastoralism and timber exploitation could be practiced in more impervious mountainous environments. In this context, control of overland routes appears to have been as important as water management in the alluvial plains. Our analysis shows that, at the regional level, overland routes developed mainly along north-south trajectories. [24] These trajectories basically allowed the connection of the intermountain valleys that mark the piedmont of the Bakthiari chain: for example, the Izeh plain was connected to the Shimbar plain by routes that developed along north-south synclinal valleys. The Izeh plain has been continuously inhabited since prehistoric times, which probably explains its importance along these routes. With this in mind, we can also assume that the regional road network in the highlands was basically designed to interconnect areas that would have allowed the settlers to best exploit the land in mountainous environments, i.e. in intermountain rather than synclinal valleys. Instead, west-east trajectories could have had both regional and supra-regional uses. The latter were of fundamental importance in connecting the lowlands with the highlands, especially the plains of Susa and Shushtar with Fars and the area of modern Esfahan.

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[20] See Foietta in this volume.

[21] ALIZADEH *et al*. 2004.

[22] It has been highlighted that between the Sassanian and early Islamic period dams and artificial water systems caused the systematic diversion of the main groundwater flow (WALSTRA *et al*. 2010, 126).

Although extremely sparsely populated, the highlands seem to have been the preferred environment for the construction of monumental landmarks, in this case terraced sanctuaries (it is remarkable that at least three of the four terraced sanctuaries identified so far were placed along west-east trajectories). These can probably be interpreted as important extra-urban middle grounds, which were part of a complex network of relationships with different centres in the region.[25] The proximity to regional and/or superregional routes seems to fit well with the characterisation of terraced sanctuaries as landmarks, not only religious, for sparse settlements. The different positions of the sanctuaries in relation to the known settlements show how architecture in this environment took heterogeneous forms and how different types of relationships were established between these sites and the settlement network.

Research on materiality shows that in both the lowlands and the highlands the population was aware of trends developed in a global milieu, and that these trends blended with more traditional productions, locally developed for millennia. Especially in pottery-making,[26] where appropriation and adaptation are frequent phenomena, the forms and surface treatments of hybrid productions seem to reflect choices linked to the local tradition as well as choices aimed at elaborating trends of an international repertoire strongly influenced by lexica originated in the Mediterranean and then elaborated in different regional milieus. The diffusion of international ceramic types is certainly more pronounced in large urban centers, but records from smaller sites or from the sparse settlements of the Khuzestan piedmont can likewise follow the same trend, at least to some extent. The introduction of these types into the regional ceramic repertoire seems to have led to the creation of an extremely varied production, in which the international influence is balanced by manufacturing techniques (especially surface treatment and decoration) that followed local models and by forms of continuity influenced by the Achaemenid experience. The presence of global ceramic types is not evenly distributed, as some areas seem to have been hardly affected by such an influence, but the major urban centers of the Seleucid and Parthian periods seem to have played an essential role in the transmission of new models and trends: this is the case of Susa for instance.

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[23] See Giusto in this volume.

[24] On overland routes of highland Elymais see GIUSTO, MESSINA forthcoming.

[25] On this aspect see MESSINA 2015 and forthcoming. For a recent examination of the problems related with some terraced sanctuaries of highland Elymais see SARDARI ZARCHI *et al*. 2014 and SALARIS 2023.

[26] See Cellerino in this volume.

The materials known from the various archaeological contexts of Khuzestan, especially diagnostic records, confirm that the highlands and lowlands, although so different, were interconnected, as the diffusion of global lexica is well documented even in apparently remote places. This can be also verified by studying material classes other than pottery. One may think of the bronze statues or the precious grave goods found in the religious and funerary complex of Kal-e Chendar, in the valley of Shami (north of Izeh): these artworks testify to the adoption of global models by the local wealthy society in a context of international aspirations. Probably not perchance, such a complex acquired a reputation that that went far beyond Elymais itself, having been mentioned – seldom with the name of Azara (?) – by Strabo (16.1.18) and Polybius (31.9).[27]

When considering the presence of landmarks in environments such as highland Khuzestan, it must also be considered that the peculiarities of the landscape and the attractiveness of some natural places have always played an important role in the ideology and rituality of the people who settled on the Iranian Plateau (and more generally in mountain regions). One may think of a landscape agency when considering other sites in the area that date back to more ancient periods, such as Kul-e Farah and Shikaft-e Salman. From this perspective, landmarks in the mountains may well have had a symbolic value and agency.

In any case, it seems that human-environment interaction in mountain regions are particularly characterized by the adaptation of human interventions to the pre-existing ecological and geomorphological setting: sparse settlement patterns and limited actions of land-catching and -use testify that prolonged human activity and presence in such an environment did not lead to a high degree of habitat fragmentation, having been oriented towards a cautious exploitation of natural resources and a low impact of anthropization processes. In alluvia, human-environment interaction is rather marked by actions of deep landscape transformation, which can be framed in the context of a high anthropogenic impact and high degree of habitat fragmentation. The human response to environmental challenges has thus been different in the two environments – as one might think logical –, and it has generated different resilience dynamics, with one important exception: in both environments, connectivity has been promoted to the best of government systems' capability. Even in an unbalanced system centered on strategies of transformation *vs* adaptation, the benefits of connective potential seem to have always been targeted by interventions of local or centralized authorities.

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[27] On this issue and on the identification of the Kal-e Chendar complex with the temple mentioned in Greek sources, see MEHR KIAN, MESSINA 2025.

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13. Settlement Pattern, Infrastructure, and Land Exploitation in the Territory of Susa and Shushtar. A Comparative Study of Two Lowlands during the Seleucid, Parthian and Elymean Periods

Enrico Foietta

Abstract

This paper analyses, verifies, and integrates previous regional surveys for the Susiana and Shushtar areas, offering new insights and evaluations based on remote sensing data and recent publications related to the Seleucid, Parthian, and Elymean periods.

Keywords

Susiana, Shushtar, Settlement pattern, Elymean/Middle-Parthian period, Agriculture.

13.1. Introduction

The main purpose of this paper is to explore the feasibility of integrating ‘old’ regional or subregional archaeological surveys conducted in the Khuzestan plains with new remote sensing analysis and landscape research. This integration seeks to offer a renewed study of this landscape from remote, improving our understanding of settlement patterns in the lowlands, highlighting characteristics and variations during the Seleucid, Parthian, and Elymean periods, which are the central focus of the University of Torino’s research group within the ‘Eranshahr project’.[1]

This work also seeks to compare our outcomes with that proposed by F. Giusto for the mountainous landscape of Khuzestan to elucidate differences, features, and interrelationships within a unified political, economic, administrative and military space under the Seleucid, Parthian and Elymean dominations (§ 13.4).

The areas of Susa and Shushtar plains (Fig. 13.1) were chosen as main case studies for different reasons; the Susiana is significant, reaching the northern and eastern piedmont areas of the Zagros for comparing lowland and mountainous landscapes, as a sort of transition zone, and for the presence of the fundamental archaeological site of Susa, widely excavated by the French Expeditions and mentioned in several historical sources. The primary challenge in this case lies in the characteristics of the extensive previous surveys and datasets, such as those conducted by R. Wenke, which require careful verification to be effectively utilised in understanding the ancient environment and territory.[2]

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[1] I would like to thank all the members of the ‘Eranshahr Project’ and mainly Vito Messina, Alessandra Cellerino, and Francesca Giusto for their constant support in conducting this research and for their suggestions regarding both the study of the landscape and the analysis of the pottery corpus.

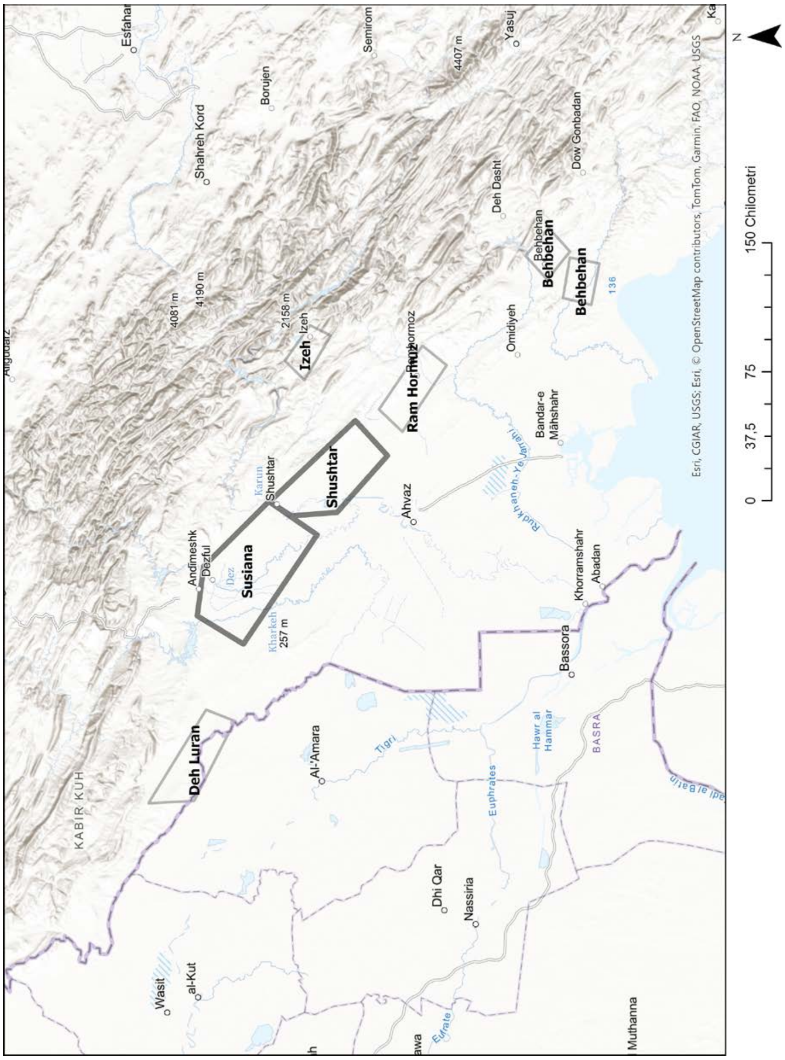
Susiana
Shushtar
Ram Hormoz
Izeh
Behbehan
Deh Luran
Dezful
Andimeshk
Shushtar
Ahvaz
Karun
Dez
Kharkeh
Bandar-e Māhshahr
Khorramshahr
Abadan
Bassora
Al-'Amara
Tigri
Euphrates
Hawr al Hammar
BASRA
Dhi Qar
Nassiria
Wasit
al-Kut
Muthanna
Omidiyeh
Deh Dasht
Dow Gonbadan
Yasuj
Semirom
Borujen
Shahreh Kord
Esfahan
KABIR KUH
4081 m
4190 m
2158 m
4407 m
257 m
N
0
37,5
75
150 Chilometri
Esri, CGIAR, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, FAO, NOAA, USGS

Fig. 13.1. Main archaeological surveys in Khuzestan. Susiana and Shushstar areas are marked in dark grey.

Conversely, the Shushtar plain was chosen for its territorial continuity to the east with the Susiana and more recent archaeological surveys, notably those by A. Moghaddam, N. Miri and M. Sorush.[3] This region was also selected to assess the impact of key water infrastructures constructed during the analysed periods, which preceded the monumental Sasanian structures built in Shushtar.[4]

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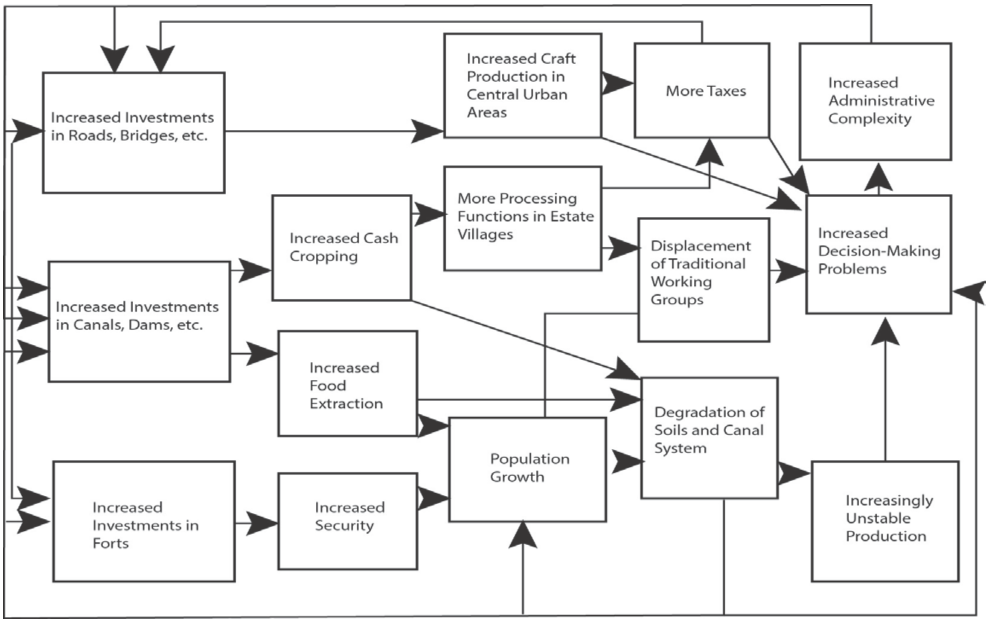
[2] The main published archaeological surveys in Susiana in chronological order are: WENKE 1975; 1975–1976; DE MIROSCHEDJI 1977; WENKE 1981; 1987; ALIZADEH 1985 (for the area of Ahwaz).

[3] MOGHADDAM, MIRI 2003; MOGHADDAM 2012; SORUSH 2016; ALIZADEH *et al.* 2004.

13.2. The Susiana plain

13.2.1. The survey of R. Wenke

Wenke's survey in Susiana, initially presented as a doctoral thesis and subsequently published in an extensive paper in the journal *Mesopotamia* (1975–1976), raises a critical question: whether this research, as previously suggested by some scholars, remains viable for research, after an appropriate recalibration and is updated with more recent pottery datasets to refine the chronological framework of the sites.[5]



Increased Investments in Roads, Bridges, etc.
Increased Craft Production in Central Urban Areas
More Taxes
Increased Administrative Complexity
More Processing Functions in Estate Villages
Increased Cash Cropping
Displacement of Traditional Working Groups
Increased Decision-Making Problems
Increased Investments in Canals, Dams, etc.
Increased Food Extraction
Degradation of Soils and Canal System
Population Growth
Increased Investments in Forts
Increased Security
Increasingly Unstable Production

Fig. 13.2. Research model n. 2 proposed by R. Wenke (WENKE 1975–1976, 36, tab. 2).

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[4] The research group of the University of Torino, directed by Vito Messina, includes Mauro Como and Elena Vasirani from the 'Scuola di Specializzazione G. Gullini – Torino', who conducted a preliminary photo interpretation research within the 'Eranshahr project'. Some results presented here were preliminarily suggested in their respective works and provided important reflections for our proposals (COMO 2021–2022; VASIRANI 2023).

[5] Even if Wenke tried to prevent errors with the use of different biases for collection methods and in ceramic sample (WENKE 1975–1976, 43–46), his survey was conducted before several important excavations and publications at the main site of region, Susa, which has furnished important stratified data about the pottery. For the publication about the pottery of Susa see the paper of A. Cellerino in this volume and her updated bibliography. For a detailed overview of the pottery of the site see: DE MIROSCHEDJI 1981; HAERINCK 1983, 14–17; BOUCHARLAT 1987; 1993. This evaluation contributes to a broader discussion within the field of landscape studies, particularly in the context of the Near and Middle East, regarding the use of previous archaeological regional surveys. These surveys, which covered vast areas spanning thousands of square kilometres, are unlikely to be replicated in the future due to economic and methodological constraints.

Conducted between January and August 1973 with the support from the University of Michigan and prof. H.T. Wright, Wenke's survey aimed to check on a specific case study theoretical hypotheses about imperial political actions specifically in this region between 150 BCE and 650 CE.[6] These proposals, stimulated by the preliminary works of J. Steward, K. Wittfogel, and R. McC. Adams in other areas of the Near and Middle East,[7] sought to establish more 'objective' parameters in investigating ancient territories and settlements. Key aspects included population growth and economic fluctuations related to agricultural production.[8] Although the direct relationship between agriculture, population growth, and decline is now outdated, some themes from this study, especially of its theorical aspects, remain crucial as the center-periphery dynamics in ancient imperial and kingdom entities, the relationship between complex factors such as population growth/decline, imperial/state investment in agriculture and security, the efficiency of administrative institutions, and the evaluation of these factors quantitatively and qualitatively with their interrelations.

The reasons for choosing the Susiana to test the impact of the imperial policies of the Parthian and later the Sasanian Empires are well explained by Wenke and continue to be relevant. Firstly, Susiana was clearly subject to the development of 'imperial' programs and projects because regional and provincial capitals were constructed or reconstructed as Susa, Iwan-e Kherkah, and Gund-i Shapur, during the Seleucid-Sasanian periods, likely because it had some of the best lands and water resources in Khuzestan and in the entire Iran. Moreover, according to R. McC. Adams, these areas must have reached a population density never acquired before precisely during the Parthian and Sasanian periods.[9] Additionally, there was significantly more historical information about the Susiana compared to other regions under the Parthian and Sasanian yokes[10] and an extensive amount of information was also archived for various reasons on the nature of the soils and waters, meteorological sequences, ecological series, information on cereal production and crop yields of edible species, and demographic series on contemporary villages useful for landscape studies. Furthermore, Khuzestan was probably among the first major production areas of rice and sugarcane, possibly from the ancient periods, in the Middle East, which required a highly centralized and comprehensive irrigation system.[11] Wenke's theoretical models for studying the relationship between territory, society, and administration were highly sophisticated, particularly the model summarized as model n. 2, which continues to offer valuable insights today, linking historical and social questions to landscape from a diachronic perspective (Fig. 13.2).[12]

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[6] WENKE 1975, ii-viii; WENKE 1975–1976, 31–34.

[7] WENKE 1975–1976, 31. See STEWARD 1949; WITTFOGEL 1957; ADAMS 1966.

[8] WENKE 1975–1976, 31.

[9] ADAMS 1962, 8–10; WENKE 1975–1976, 33.

[10] WENKE 1975–1976, 33.

[11] WENKE 1975–1976, 33–34.

[12] WENKE 1975–1976, 34–37, tab. 2.

The archaeological survey was conducted over approx. 1.600 km² in the Susiana plain in an area immediately south of the city of Dezful.[13] The limits of the survey are precisely marked in Fig. 13.3. Important rivers as the Kharkhe, the Dez, and the Karun with different regimes flow with an approx. north-south direction in this area. Water from these rivers is now conveyed to individual fields through a complex network of earthen hierarchized canals system, which includes also weirs and barrages.[14] The geological history of the area, reported precisely by M. Kirkby, suggests that there have been many significant changes in the hydrology of the past, and that some of these may be yet in progress. The main rivers on the Susiana plain began incising in their present channels at about 2000 BCE. The Shaur, the river passing close to the site of Susa, which in ancient times was characterised by a major waterflow,[15] has been correctly interpreted by M. Kirkby and D. Potts as a previous course of the Kharkhe. According to Kirkby's calculations the Shaur was the river Karkheh about 1500 BCE – 500 CE,[16] comprehending the Seleucid, Parthian and Elymean periods explored in this paper.

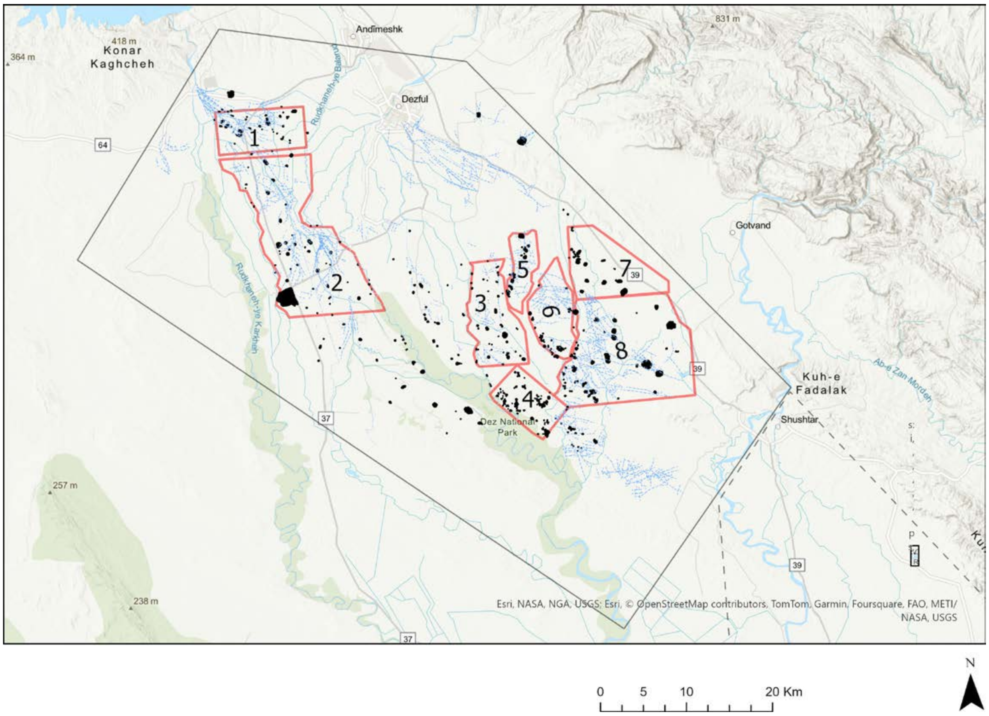
Andimeshk
418 m
Konar Kaghcheh
364 m
831 m
Dezful
64
1
2
3
4
5
6
7
8
39
37
Gotvand
Kuh-e Fadalak
Shushtar
Dez National Park
257 m
238 m
Esri, NASA, NGA, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS
0 5 10 20 Km
N

Fig. 13.3. Susiana with the eight subareas of Wenke's survey.

The climate of the region is characterized by pronounced seasonality, with no rainfall occurring from spring through autumn and average daytime temperatures frequently exceeding 40°C. The remainder of the year is relatively cool and wet, receiving approximately 400 mm of annual precipitation. The 200 mm isohyet is situated approximately 150 km south of Dezful. Although the climate likely remained stable during the Seleucid, Parthian and Elymean periods, even a slight northward shift of this line could impact significatively on agricultural productivity.[17]

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[13] WENKE 1975, iii.

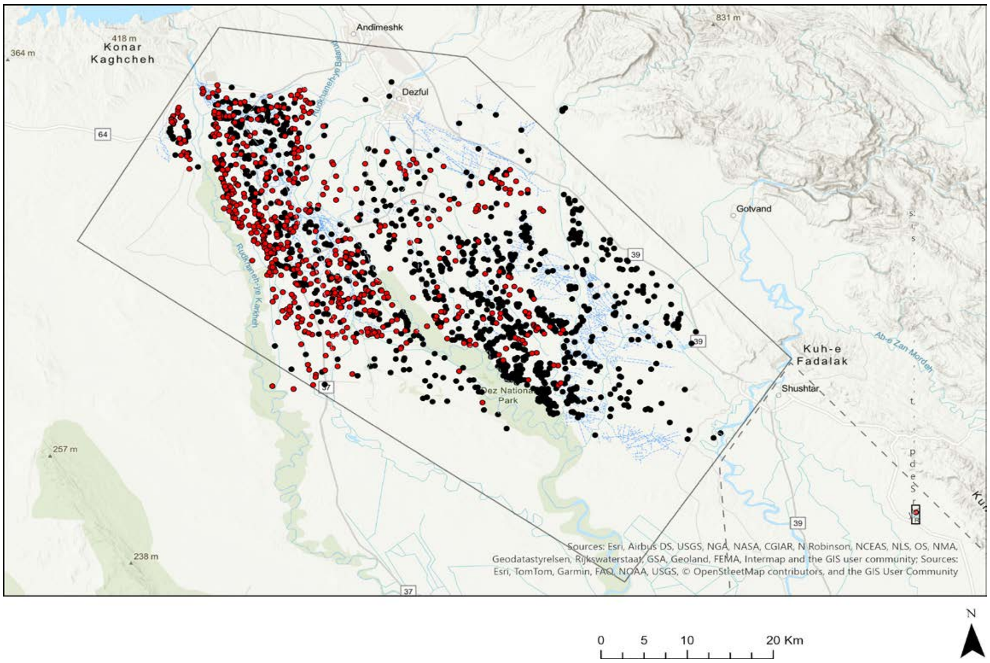
[14] WENKE 1975–1976, 83.

[15] KIRKBY 1977, 273; POTTS 1999, 33.

[16] POTTS 1999, 33.

The survey, divided by the archaeologists for convenience of the study into eight subareas (Fig. 13.3), was planned and carried out by the American team using a combined method with a preceding interpretation of aerial images and ground reconnaissance. For the most part of numbered site, a collection of surface pottery and ground topography of visible tells, structures and canals was planned. The total number of sites identified during the expedition was 1288, although the number of those with chronological indications was lower standing at 800 archaeological sites.[18]

13.2.2. Eranshahr Project methodology. Data processing and verification



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community; Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Fig. 13.4. Susiana. In red are marked the new sites identified via photointerpretation, in black are the sites identified by R. Wenke.

For the 'Eranshahr project', employing a methodology shared with new territorial and landscape studies published during the last decades, the maps drawn by R. Wenke were integrally georeferenced, all the archaeological sites were verified and accurately positioned using a background mosaic of CORONA images[19] and open-

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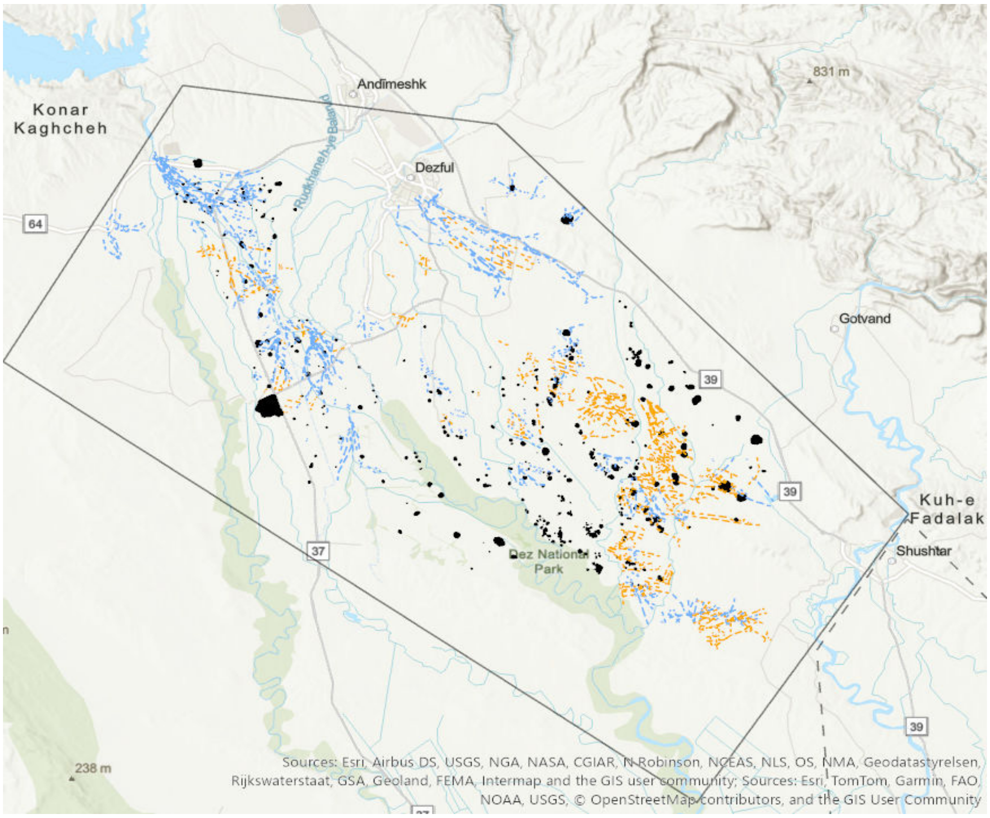
[17] WENKE 1975–1976, 81–82.

[18] WENKE 1975, iii, 26; 1975–1976, 42.

[19] The satellite images, initially downloaded and georeferenced by the CORONA Atlas, were resampled and re-georeferenced based on visible points identified on more accurate satellite and aerial images

source catalogs such as Google Maps and BING. Thanks to this photo interpretation, using different support and filters applied to satellite and aerial images for an easier detection of tells and anthrosols,[20] 630 new archaeological sites and 459 segments of additional canals, beyond those previously reported, were identified (Figs. 13.4–13.5). The problem related to these new sites (usually tell-shape sites for easier recognizance on aerial and satellite imagery) concerns the lack of chronological information without a ground survey collecting surface pottery. The newly detected canals, on the other hand, can be easily integrated into the overall river and canal network of the region if they intersect or pass through previously dated sites.



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community; Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Fig. 13.5. Susiana. Linear anomalies (canals) in blue identified by Wenke; linear anomalies in orange (canals and hollow ways) identified by the Author for the Eranshahr Project.

Several thousand diagnostic pottery fragments were processed during Wenke's survey.[21] The author identified 213 main types using a morphological criterion, the fabric, and the presence or lack of surface treatment as the glaze.[22] Building on this

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available in open-source online catalogs such as Google Earth and Bing. For the CORONA Atlas and its procedure of georeferencing the images: CASANA, COTHREN 2013 and see: https://corona.cast.uark.edu/. Last view: 21/08/2024. Last view: 21/08/2024.

[20] Anthrosols are easily detectable in the infrared or nearinfrared spectrum (IR+NIR). A similar methodology has been used in comparison with that employed for the Izeh plain by V. Messina (MESSINA, MEHR KIAN 2019, 44–47).

[21] WENKE 1975, 26; 1975–1976, 42.

[22] WENKE 1975–1976, 47.

ceramic seriation work, R. Wenke developed a synthetic chronological table of the diagnostic types for the periods,[23] evaluating comparisons with Seleucid, Parthian, and Sasanian sites known at that time, alongside evidence from coinage and figurine fragments discovered on the surface, which can provide additional chronological information.[24]

Thanks to the collaboration with A. Cellerino, ceramologist of the Hungh-e Azhdar, Kal-e Chendar/Shami and Seleucia on the Tigris Archaeological Expeditions (UniTo – CRAST), the chronologies of these pottery types were verified, according to recent publications concerning the Seleucid and Parthian pottery. Although some problems already highlighted by P. de Miroschedji and R. Boucharlat in some papers on the dating of certain specific types were found,[25] especially for the Seleucid-Parthian period, which seems to include some types that should be related to the 5th–4th century BCE based on comparisons with the pottery from Susa,[26] the proposal made by R. Wenke remains generally valid,[27] especially for the Elymean/Middle-Parthian period.[28] For the Terminal Parthian period, some of the identified types could also belong to the initial Sasanian phase (3rd century CE), also because the site of Iwan-e Kherkah pottery was erroneously included by R. Wenke in the late Parthian period,[29] but even in this case, the mistakes do not seem to invalidate general trends.[30]

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[23] WENKE 1975–1976, tab. 28.

[24] WENKE 1975–1976, 56–80.

[25] DE MIROSCHEDJI 1981, 169–170; BOUCHARLAT 1983, 18; 1987, 211-212, n. 158.

[26] The numbers 600, 602, 605a, 630, and 633, classified by R. Wenke among Seleucid-Parthian types, find punctual parallels, according to the work of A. Cellerino, with earlier types dated to the 5th and 4th centuries BC. Specifically, Type 600 corresponds with types from Level 5A of the Ville Royale II (5th century B.C.) (VR II, fig. 14,7); Type 602 corresponds with types from Level 5f of the Apadana (4th century B.C.) (Ap. 17,14); Type 605a with types from Level 5 of the Apadana (5th century B.C.) (Ap. 14,4); Type 626 with types from Level 5a (5th century B.C.) of Ville Royale (VR II, 7,11); Type 630 with examples from Apadana E, Level 6 (5th century B.C.) (Ap. 55,2); and Type 633 is comparable to examples from Ville Royale, Level 5A (first half of the 5th century B.C. - first half of the 4th century B.C.). The other types have been confirmed with a dating between the first half of the 2nd century BCE and the 1st century CE. The numbers 605b, 610, 627, 639 find comparisons with specimens from Ville Royale, layers 3B (1st cent. BCE), and 3D (first half of the 2nd cent. BCE).

[27] The Elymean/Middle-Parthian types reported by Wenke are nos. 500-509, 526-536, 540, 551-553 (Wenke 1975–1976, Tab. 28). Nos. 503, 504, 505, 508, 529, 530, 534, 535, 540 find comparisons with pottery types of the Ville Royale II and Apadana dated between the 1st cent. BCE and the 1st cent. CE. Specifically, no. 503 (VR II, level 3B, fig. 23,5); no. 504 (VR II, level 3A, fig. 30, 2–3); no. 505 (VRII, level 3A, fig. 30,3); no. 508 (VRII, level 3A, fig. 30,30; Apadana, level VR 5 and 5d, fig. 62,1, 5c–b, fig. 69,8); no. 529 (Apadana, level 5C, fig. 65,1); no. 530 (Apadana, level 3A, fig. 28,2); no. 534 (Apadana, level 3A, fig. 25,8); no. 535 (Apadana, level 3B, fig. 22,1–2); no. 540 (Apadana, level 3A, fig. 25,3).

[28] Wenke in the first two publications (WENKE 1975; 1975–1976) use the label 'mid-Parthian', while from 1987 he correctly prefers to use the definition Elymean/mid-Parthian (WENKE 1987, 254).

[29] The terminal Parthian types identified by Wenke are: 400–403; 406–410; 426–433; 435; 451; 476. Some of them according to A. Cellerino can be also related to the initial Sasanian period, which is the continuation of the terminal Parthian tradition (HAERINCK 1983, 47–56; BOUCHARLAT, HAERINCK 1991). For the chronology proposed by Wenke for Iwan-e Kharkeh: WENKE 1975–1976, 73–75.

[30] An additional problem that needs to be emphasized concerns the Seleucid-Parthian period, which is extremely wide, about 300 years, and thus risks being not very indicative for the various phases of territorial development. For this reason, P. de Miroschedji suggests in his later publication on the survey conducted in 1977 in Khuzestan a chronological partition, which considered the Middle

13.2.3. An overview of the Seleuco-Parthian period (324 BCE – 25 BCE) at Susa and in the Susiana plain

The Seleuco-Parthian period is chronologically defined by R. Wenke from the death of Alexander the Great to the conquest of Susa by the Kingdom of Elymais in 25 BCE.[31] The political, historical, archaeological and social framework for the city of Susa was firstly provided by the pioneering work of G. Le Rider[32] and by the recent studies published mainly by R. Boucharlat and L. Martinez-Sève.[33] The center of Susa was probably refounded by Seleucus I Nikator (305–281 BCE) and renamed Seleucia on the Eulaeus.[34] The city was already significant during the reign of Alexander the Great; several sources reported the marriage of generals and numerous Macedonian troops with local women.[35] The refoundation of Seleucia on the Eulaeus as a local capital was probably marked by numerous public works and was likely, as G. Le Rider notes, the time when several infrastructures were established to make the Eulaeus or possibly some main canals navigable up to the Gulf. This was to enable strong commercial relations between Susa and the commercial 'hub' of Charax Spasinou, built in the lower part of the Khuzestan plain.[36]

More than 50 Greek inscriptions from Susa testify to a predominantly Greek administration in city control, with civil and military governors coexisting and having a certain degree of freedom in exercising their local power and a local coinage.[37] The administration system likely remained unchanged until 147 BCE when the Kingdom of Elymais with Kamnaskires I briefly conquered the city.[38] Little is known about this interregnum, but in 140 BCE, the center was conquered by the Parthians under King Mithridates I (165–132 BCE). There was at least a decade of uncertainty with local usurpers before it was firmly held by the Parthians.[39] After about a hundred years, in 25 CE, the center was again conquered by the Kingdom of Elymais, without proposing changes in local administration and institutions. In

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Elamite II Period, the Neo Elamite I Period, the Neo Elamite II Period, the Achaemenid Period (ab. 520–330 BCE) and the Seleucid Period (ab. 330-200 BCE). The Parthian and Sasanian periods are taken in consideration and discussed in the catalog of sites for the Patak area, see DE MIROSCHEDJI 1981, 170–171, 174–175.

[31] WENKE 1975–1976, 104.

[32] LE RIDER 1965.

[33] BOUCHARLAT 1985; MARTINEZ-SEVE 2002; DABROWA 2004; MARTINEZ-SEVE 2010.

[34] LE RIDER 1965, 280; WENKE 1975–1976, 105; MARTINEZ-SEVE 2002, 32; 2010, 47; SALARIS 2017, 390–391. For the discussion about the relation between the Pasitigris (the lower course of the Karun) and the Eulaeus (upper course) see POTTS 1999.

[35] Arrian, *Anabasis* 7, 4, 4; Diodorus Siculus, 17, 107, 6; Plutarch, *Alexander*, 70, 3; Marcus Iunianus Iustinus, 12, 10, 9 ff.

[36] LE RIDER 1965, 269; WENKE 1975–1976, 105. For the recent research at Charax Spasinou: CAMPBELL *et al.* 2018.

[37] WENKE 1975–1976, 106; BOUCHARLAT 1985, 75. For the Greek inscriptions at Susa: ROUGEMONT 2012, 19–94.

[38] WENKE 1975–1976, 106; MARTINEZ-SÈVE 2002, 32.

[39] The usurper Tigraios ruled between 138 and 132, then Antiochos VII reclaimed it, before being reconquered by the Parthians (MARTINEZ-SÈVE 2002, 32).

summary, Susa and the Susiana plain during the Seleucid and initial Parthian period were no longer the 'capital of the world' as during the Achaemenid period, but Susa remained an important semi-autonomous center, minting its own local coins and having its own laws, as testified by the inscriptions discovered at the site.

An interesting fact reported by Diodorus Siculus mentions that a military expedition in Susiana in 316 BCE was predominantly supplied with rice, sesame, and dates grown in the same province. To ensure this type of food, it is therefore hypothesized that there was already widespread irrigation in the area. Similar testimonies about the agricultural wealth and the presence of rice cultivation are later reported also by Strabo.[40] The relationship with Mesopotamia and, especially, the new megalopolis of Seleucia on the Tigris, are well evidenced by the recovery of coins in Susa from archaeological layers, with 33 coins from Seleucia on the Tigris for the first period 310–223 BC, compared to 314 coins from the period 223–175 BC.[41]

Probably starting from the reigns of Antiochus III (222–187 BCE) and Seleucus IV (187–175 BCE), Seleucia on the Eulaeus became an important commercial center controlling trade routes leading from the Persian Gulf to Ecbatana and Seleucia on the Tigris.[42] As R. Boucharlat correctly observed, it is likely that the population of the hinterland area of Susa did not correspond to that of the city itself, precisely because the city exhibited a higher degree of Hellenization, especially during the Seleucid and Parthian Periods, which is testified by the material culture.[43]

13.2.4. Settlement pattern in Susiana during the Seleuco-Parthian period

To fully understand the Seleuco-Parthian period from a settlement perspective, it is necessary to compare it with the previous Achaemenid settlement pattern (Fig. 13.6a).[44] During the Seleuco-Parthian period, a noteworthy aspect is the marked increase in settlement density around the city of Susa.[45] Probably from this phase was the establishment there of a first canals system, evidenced by some sites in Area

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[40] Strabo, *Geography*, 15, 3, 10–11; 15, 1, 18.

[41] WENKE 1975–1976, tab. 30; BOUCHARLAT 1985, fig. 7.

[42] APERGHIS 2004, 73.

[43] See BOUCHARLAT 1985, 74–76.

[44] The Achaemenid settlement pattern, even if its general trend is probably correct, must be considered with more caution in comparison with the later periods, reporting the remarks about the Achaemenid pottery dataset argued by P. de Miroschedji and R. Boucharlat. It is useful in any case also to report a sentence published by Wenke in 1987: "It should be noted, however, that, on the basis of excavations at Susa after my 1973 survey, Miroschedji (1981) and Boucharlat (n.d.) have persuasively argued that my reconstruction on the Achaemenid settlement pattern on the Susiana included some sites that belonged to the Neo-Elamite Period. If they are right, the Achaemenid Period seems to have had a lower rural population densities and more limited agricultural productivity than was previously thought. As various scholars have remarked, it is somewhat surprising that so few Achaemenid towns and villages existed on the Susiana Plain in an era when Susa was supposedly the capital of a great empire" (WENKE 1987, 254).

[45] WENKE 1975–1976, 110; 1987, 254.

2 close to Susa,[46] while the northern fringes of the survey (Area 1) was apparently unsettled (Figs. 13.6b, 13.3).

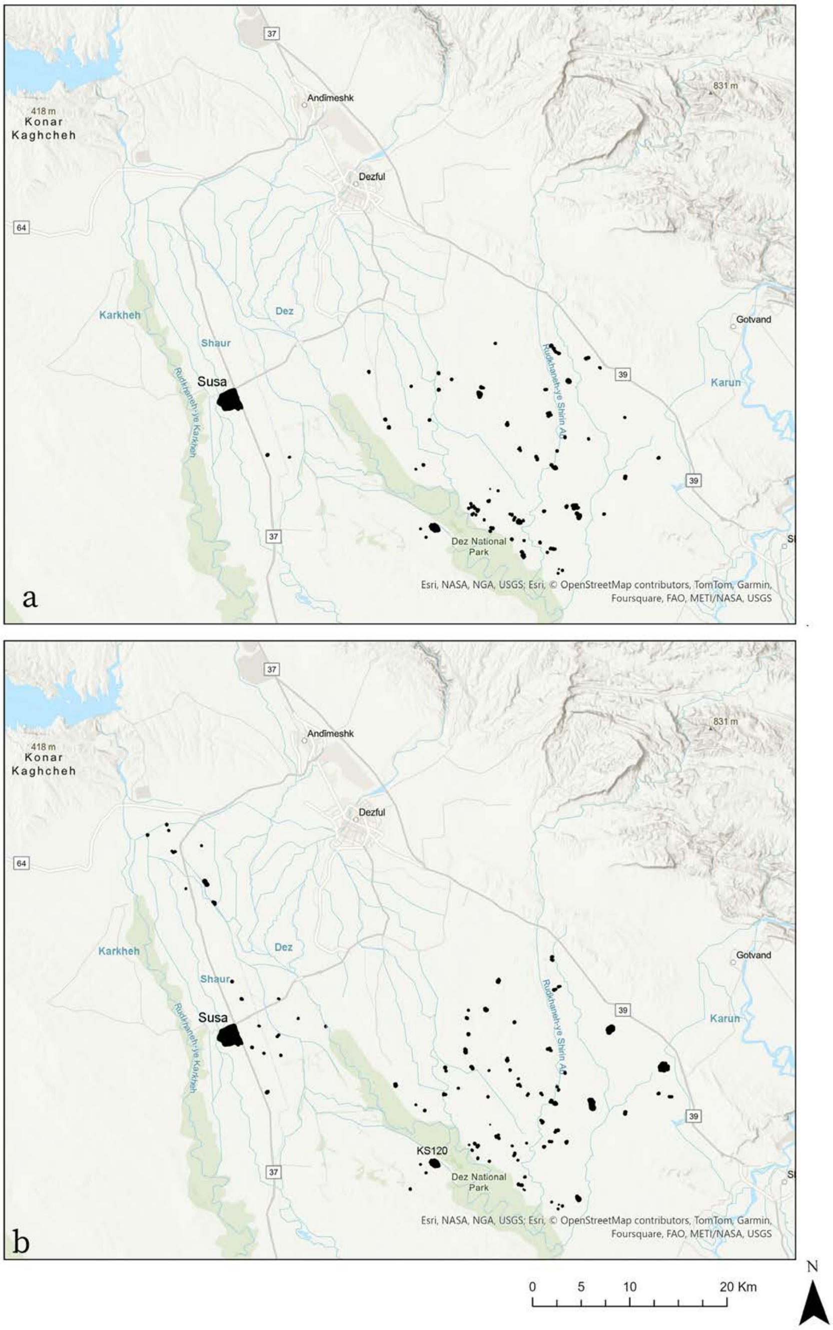
37
Andimeshk
831 m
418 m
Konar Kaghcheh
Dezful
64
Karkheh
Dez
Shaur
Gotvand
Susa
Rudkhaneh-ye Karkheh
Rudkhaneh-ye Shirin Ab
39
Karun
Dez National Park
Esri, NASA, NGA, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS
a
KS120
b
N
0 5 10 20 Km

Fig. 13.6. Susiana survey. **a)** Achaemenid settlement pattern; **b)** Seleuco-Parthian settlement pattern.

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[46] See for instances: KS 578, KS 1114, KS 1115, KS 1165, which testified also later occupations but indicates probably that the canal systems were begun in the Seleuco-Parthian period (WENKE 1975–1976, 110).

Another noteworthy point is the comparison between the average sizes of settlements from the Achaemenid and Seleucid-Parthian periods reported by R. Wenke: 1.38 ha and 0.68 ha, respectively.[47] This indicates that Susa was the only 'city', while outside its urban limits, there were settled only small villages. Susa's role however was surely reduced compared to its status as the 'capital of the world' in the previous period, and there was greater instability during the Seleucid-Parthian period, although it is difficult to determine the city size and population during this phase.[48]

There may have been a change in the agricultural system, with a significant reduction in the size of villages, in favor of a probable progressive increase in the irrigation system. The data from Area 4 (the South Dez Plain) supports this reconstruction with villages likely aligned along canals, which left no visible traces through the satellite and aerial images. Areas 5 (the 'Choga Mish Island') and 6 (the 'KS 107 Island') are interesting; the former is much less occupied than during the Achaemenid period, while the latter shows a slight increase in the settlements number (Figs. 13.6b, 13.3).[49]

13.2.5. An overview of the Elymean/Middle-Parthian and Late Parthian periods (25 BCE – 250 CE) at Susa and in the Susiana plain

During the Elymean/Middle-Parthian period between 25 BCE and 125 CE, the Elymeans conquered Susa, and the city reached its peak of population and productivity as a local capital.[50] According to R. Wenke, the Terminal Parthian period corresponds to the extended chronological span between 125–250 CE, when Shapur I (241–270 CE) became ruler and began constructing Gund-i Shapur.[51] The term 'Parthian' is somewhat inaccurate politically because the area was mainly governed by the Elymean Kingdom during this time.

The dynastic change likely occurred with Vardanes I, the last Parthian ruler to mint coins in Susa, while Elymean rulers minted coins after this date. This phase, extending over the 1st century CE, marks the period of greatest expansion and growth of the city, as evidenced by extensive archaeological data.[52] The well-known stele of Kwasak attests on the other hand a new phase of brief Parthian interregnum with the presence of Artabanus IV (213–224 CE) and his vassal Kwasak at Susa.[53] The monetary findings from Seleucia on the Tigris in the archaeological layers of

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[47] WENKE 1975–1976, 110; 1987, 254.

[48] "A number of Seleukid foundations are also attested in this area, pointing to further growth. Thus, the total population of Susiane in the Seleukid period is likely to have been of the order of half a million" (APERGHIS 2004, 38).

[49] WENKE 1975–1976, 110.

[50] WENKE 1975–1976, 113.

[51] WENKE 1975–1976, 113.

[52] BOUCHARLAT 1985, 76–77.

[53] LE RIDER 1965, 430; WENKE 1975–1976, 114; INVERNIZZI 2000, 235, 238, fig. 6. For Artabanus IV: SCHIPPMANN 1986, 647–650.

Susa show a progressive decline, indicating the gradual loss of the city's commercial role until the Sasanian conquest.[54]

13.2.6. Settlement patterns in Susiana during the Elymean/Middle-Parthian period

The occupation density for the Elymean/Middle-Parthian period is significantly higher for the analyzed area compared to all previous periods, approximately double the sum of the Achaemenid and Seleucid-Parthian periods combined (Figs. 13.7a, 13.3).

In Area 1 (northwest corner of the survey area), there is an occupation of 20.6 ha, compared to 4.8 ha during the Seleuco-Parthian period.[55] Various reasons are linked to why it was not so heavily occupied in previous periods, related to the difficulty of defending strategy and irrigation of this area. The presence of canals relics with clusters of sites in relation to them seems to suggest the presence of a canal system, that becomes evident in later periods.[56]

In Area 2 (Susa area), there is a progressive occupation of the northern hinterland of the city, with the construction of several villages (KS 11, KS 471, KS 871, KS 874, KS 1095, KS 1101, KS and 1133). Moreover, a dam on the Dez was likely constructed during this period to supply the area east of Susa, where numerous canals and some settlements (KS 1103, KS 1104, KS 1095, KS 577, KS 1108, KS 1121, KS 1160) are identified.[57] As in the Seleuco-Parthian period, some peripheral sites around Susa were built, probably connected to its supply. The overall settlement occupation of the area is 22.6 ha, which would certainly necessitate an articulated canal system for subsistence, with linear traces identified on the ground.

Area 3 (middle Dez plain) was the most densely populated area during the Achaemenid and Seleuco-Parthian periods. Based on the overall occupied area in the Elymean/Middle-Parthian period, dry farming can be assumed. However, there are also aligned medium-large settlements (KS 484, KS 113, KS 117, KS 410), suggesting the use of spotted canals in some clusters.[58] The occupation of KS 113 is interesting because it lays on a prehistoric settlement raised 20 m above the plain level, likely indicating a security need, as other prehistoric sites without tell formation were not reoccupied.[59] Generally, the settlement pattern changes with the establishment of new canal systems, with a migration of sites compared to where they were previously established. In this area, this process seems to occur in the Elymean/Middle-Parthian period, with new settlements along new canal systems' paths, for example, those derived from the Oudjirud (KS 484, KS 485, KS487, KS 113, KS 413). The lack of reoccupation of almost eight Seleucid-Parthian sites in the area indicates a significant change in the territory management.[60]

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[54] WENKE 1975, 115; BOUCHARLAT 1985, 77, fig. 3.

[55] WENKE 1975–1976, 115. A first cluster, located in the western part of Area 1, includes KS 352, KS 355, KS 356, KS 1058, and KS 1068. A second cluster, associated with the same canal system, includes KS 377, KS 378, KS 379, KS 1029, KS 1031, KS 1032, KS 1033, and KS 1038. A third cluster of sites (KS 9, KS 392, KS 439, KS 441, KS 1058, KS 3701) is located in the eastern part of Area 1, built on a network of earthen canals that originate from the same water access on the Karkheh River, supplying the first two clusters.

[56] WENKE 1975–1976, 116; 1987, 254.

[57] WENKE 1975–1976, 117. According to the photointerpretation of CORONA images, the main dam was probably built on the Dez close to the KS 1103 and KS 1104. It is impossible to exclude also the presence of a smaller dam, which supplied water to another system of canals, close to KS 1095.

[58] WENKE 1975–1976, 118.

[59] WENKE 1975–1976, 118.

Area 4 (the south of Dez Plain) was already densely populated in the Achaemenid and Seleuco-Parthian periods and during more ancient periods as the prehistory. However, during the Elymean/Middle-Parthian period, there is an exponential increase in the number of sites, even surpassing the density of contemporary settlements. This process is undoubtedly due to the establishment of a complex and capillary irrigation system.[61] The alignment of various sites, although no canals are visible through aerial images, attests to this. The lack of linear 'canal-like' anomalies is likely because this is the southernmost part of the region, corresponding to the terminal part of the canal system, which would be smaller, shallower, and more prone to siltation. Additionally, the area is subject to severe salinization, making ancient canals less visible through photo-interpretation due to the lower vegetation growth. The occupation of the Deh-Now site (KS 120) during the Elymean/Middle-Parthian period is about 8 ha, possibly with some defensive purposes dictated by its elevation above the plain. R. Wenke also notes that many Elyeman/Middle-Parthian sites in the area have bricks with impressions of rice hulls, suggesting that it was heavily used for this purpose, contributing to the subsequent increase in salinity in the area caused by environmental deterioration from these intensive crops since ancient times.[62]

In Area 5 ('the Choga Mish island'), traces of a canal system and aligned sites are identified on the ground and through aerial photography. Here, there is a clear population increase during the Elymean/Middle-Parthian period. Settlement occupation is 21.72 ha, compared to 15.84 ha in the Achaemenid period and only 1.28 ha in the Seleucid-Parthian period.[63] The challenge lies in managing the Siah Mansour River to the west, which exhibits an irregular flow regime characterized by abundant water during the winter months and significantly reduced levels throughout the rest of the year. R. Wenke hypothesizes a regulation, accumulation, and reserve water system through the construction of dams and flood basins, possibly using winter floods for rice cultivation in paddies and during the spring and summer the fields for vegetable and other crop types. In the southern zone, there is also the integration of water needs with some springs and groundwater capture.

Area 6 ('island of KS-107') presents a similar situation to the previous area, with a population increase and several traces of an ancient irrigation system, although currently, there is mainly dry-farming. It consisted of imposing canals identified on the ground by R. Wenke and detectable through aerial photography (23.0 m wide and 2 m high banks),[64] suggesting that in ancient times the Siah Mansour river had a more intense water regime than currently to support such a system.

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[60] WENKE 1975–1976, 118–119; 1987, 254.

[61] WENKE 1975–1976, 119.

[62] WENKE 1975–1976, 120; 1987, 254.

[63] WENKE 1975–1976, 120.

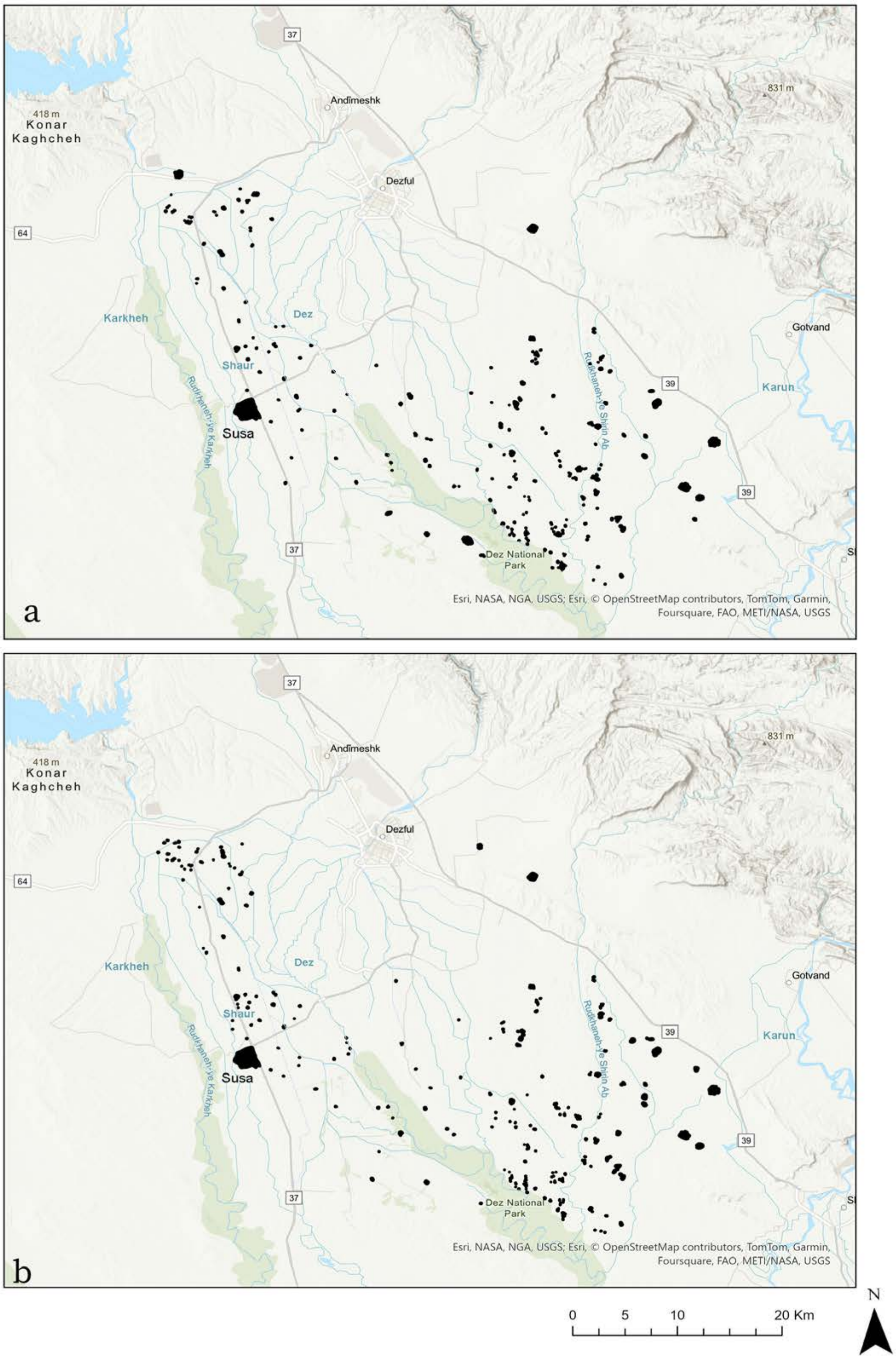
37
Andimeshk
831 m
418 m
Konar Kaghcheh
Dezful
64
Karkheh
Dez
Shaur
Susa
Rudkhaneh-ye Karkheh
Rudkhaneh-ye Shirin Ab
Gotvand
Karun
39
Dez National Park
Esri, NASA, NGA, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS
a
b
0 5 10 20 Km
N

Fig. 13.7. Susiana survey. **a)** Elymean/Middle-Parthian settlement pattern; **b)** Terminal Parthian settlement pattern.

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[64] WENKE 1975–1976, pl. vii.

In Area 7, the northeast corner of the survey area, there was no irrigation system, but there was still an increase in settlements occupation compared to previous periods. Finally, in Area 8 (southeast corner of the survey) there are many small tell-like sites in a heavily cultivated zone.[65] Traces of numerous ancient NW-SE direction canals and the alignment of numerous sites along no longer visible canals are identified. The village size is also larger compared to nearby non-irrigated areas, such as Dezful. The canals were likely fed by a more constant river flow, although there is a qanat, possibly from the Elymean/Middle-Parthian period, connecting two sites from that chronology.

During the Elymean/Middle-Parthian period there was a clear population increase and the establishment of a new agricultural systems with a significant transformation of the settlement pattern, characterized usually with relatively small settlements spread over wide areas.

13.2.7. Settlement patterns in Susiana during the Terminal-Parthian period

During the Terminal Parthian period (excluding the site of Susa), there is a slight increase in the settled area, which rises from 380 ha in the Elymean/Middle Parthian period to 404 ha (Fig. 13.7b). However, the density remains approximatively constant. [66] There are significant differences in the distribution of settlements between the two periods. For example, west of Siah Mansour, there is a decrease in the number of sites, while to the east, there is a reverse process. West of this limit, there are small settlements in the Terminal Parthian period with a considerable decline in settlement size compared to the previous period, whereas to the east, there are large villages characterized by numerous tells.

According to R. Wenke, there was during that period a significant change in agricultural strategies in this eastern area and possibly also in their administrative management. [67] Except for these zones, however, there is continuity in the agricultural system and settlement pattern established during the Elymean/Middle-Parthian period. Few new areas seem to be brought under cultivation, and the irrigation system should have remained constant or only slightly improved. According to R. Wenke, these are the periods when Susiana reached its maximum population and agricultural productivity. The presence of small, dispersed settlements partly anticipates settlement phenomena that will fully develop only in the later Sasanian period.[68]

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[65] Wenke 1975–1976, 122–123.

[66] Wenke 1975–1976, 124; 1987, 254–255.

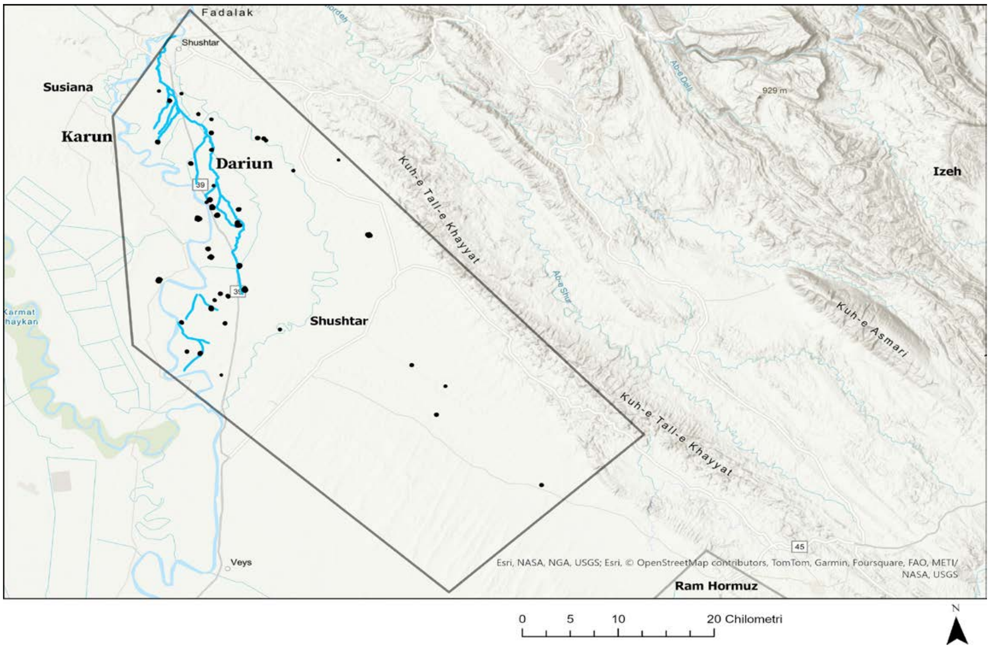
[67] Wenke 1975–1976, 124–125.

[68] Wenke 1975–1976, 130–131.

13.3. The Shushtar area

Four main surveys were conducted in the Shushtar area, identifying a total of 208 archaeological sites in the Miyanab plain.[69] The same georeferencing method used for verifying the archaeological sites and anomalies in the Susiana has also been applied to this area. Many new sites and relics of canals were identified through photo-interpretation process.[70] Beyond Shushtar, where numerous remnants of water infrastructure are commonly identified as Sasanian (e.g., the Band-e Mizan dam, the Shadorwan, and the mills complex), the study of the dataset produced in collaboration with M. Como has made it possible to identify different settlement strategies for the Achaemenid period and then for the Parthian period, which in part anticipate occupation trend generally known during the Sasanian period.

There are 47 Achaemenid period sites, covering a total surface of approx. 363 ha (Fig. 13.8).[71] During this phase, the Karun River, the main river of the area, migrates to its current position west of the Neo-Elamite period's course.[72]


Fadalak
Shushtar
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Karun
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39
Ab-e Deli
929 m
Izeh
Kuh-e Tall-e Khayyat
Ab-e Shur
Kuh-e Asmari
Shushtar
Kuh-e Tall-e Khayyat
45
Veys
Ram Hormuz
Esri, NASA, NGA, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS
0 5 10 20 Chilometri
N

Fig. 13.8. Shushtar area. Achaemenid settlement pattern with the Dariun canal system.

This is likely why the Dariun canal system was created to irrigate the region, and the point from which Karun's water was drawn probably corresponded to the current Shadorwan dam.[73] A complex canals system with numerous sites built on the banks is identified,[74] extending to KS 1604 in the south, while few sites (KS 1593, KS 1661) are found in the eastern area until reaching the Ram Hormuz region. These sites are constructed on the foothill area on some seasonal wadi.[75]

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[69] MOGHADDAM, MIRI 2003; SOROUSH 2016; ALIZADEH *et al.* 2004.

[70] A significant number of sites were identified by Mauro Como during his thesis and were subsequently supplemented through a second process of photo interpretation.

[71] MOGHADDAM, MIRI 2003, 102–103; 2007, 23–55; SORUSH 2016, 225–253; COMO 2021–2022, 47.

[72] According to Kirkby this change in the watercourse occurred around the end of the 6th century BCE (KIRKBY 1977, 77).

[73] COMO 2021–2022, 48.

For the Parthian period, 81 sites are documented with a total area of about 452 ha and an average settlement size of 5.5 ha (Fig. 13.9).[76] There is no precise definition of the Seleucid occupation phase, as few sites were identified as properly Seleucid in the 2014 survey, while others were identified as Achaemenid-Seleucid and Seleuco-Parthian.[77]

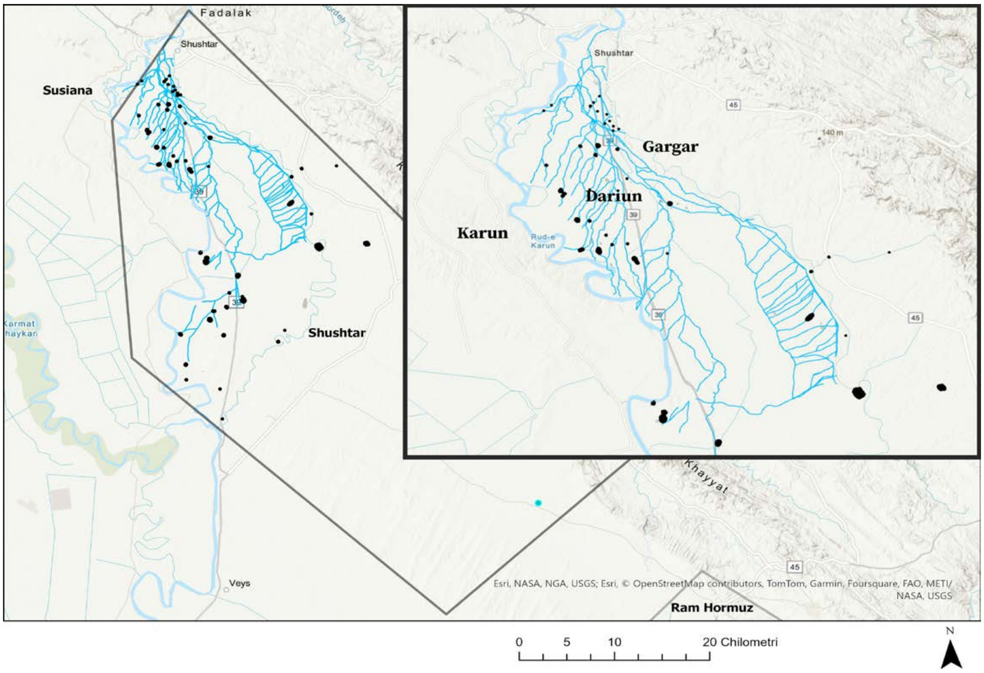
Fadalak
Shushtar
Susiana
armat
haykan
Shushtar
Veys
Khayyat
Ram Hormuz
Shushtar
Gargar
Dariun
Karun
Rud-e
Karun
140 m
39
45
Esri, NASA, NGA, USGS; Esri, © OpenStreetMap contributors, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS
0 5 10 20 Chilometri
N

Fig. 13.9. Shushtar area. Parthian settlement pattern with the Dariun and Gargar canal systems.

During the Parthian period, there was a significant increase in sites south-west from Dastowa, just south of Shushtar, while the Dariun canals system, excavated during the Achaemenid period, is expanded and integrated into the southwest area where numerous ancient canal relics are found. The southernmost extremity could also be supplied with water directly kept from the Karun. Along the Dariun system, many small sites are identified, while larger ones are built along the main canal.

The construction of the Gargar canal system in the eastern part probably occurred to protect the Dariun system from Karun floods and excessive water flow from eastern wadis.[78] According to M. Soroush, the Gargar's origin was not at the Band-i Mizan dam in Shushtar but through a branch of the Dariun starting further south from the Band-i Khak. Along the Gargar, there are fewer sites compared to the

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[74] KS 1517, KS 1530, KS 1813, KS 1581, KS 1591, KS 1624.

[75] Como 2021–2022, 48.

[76] Moghaddam, Miri 2003, 103; 2007, 47; Sorush 2016, 220–262; Como 2021–2022, 48.

[77] Sorush 2016, 223–242.

[78] Sorush 2016, 184–186.

Dariun, but various centers are aligned along the canal branching system, reaching KS 1619. In the easternmost area, there is a single site, KS 1643, with a large population increase from 18 ha to 92 ha, likely marking the activity of some trade routes that still connecting the area to Ram Hormuz.[79]

During the Sasanian period, there is significant development of the Shushtar urban area at the expense of Dastowa, which gradually lost importance, but the canalization system is always based on the Dariun and Gargar with continuous occupation and extension of Parthian sites with limited new Sasanian settlement foundations.[80]

13.4. Conclusion

From the two lowlands case studies, it emerges that there was a significant increase in settlement area, also in territory never settled before for more difficult environmental limits, and population during the Elymean/Middle-Parthian period, particularly evident in the Susiana area, corresponding to the period of control and management of this territory by the political entity of the Kingdom of Elymais. This increase in settlement area corresponds mainly to the creation of new small, dispersed settlements rather than the foundation of large cities, excluding the major sites of Susa and Dastowa respectively. This increase in dispersed villages and small settlements coincides in both areas with a significant growth of new articulated and hierarchical canal systems, along which numerous sites with probably agricultural and productive vocations are built. This process, evident from the presented data, although it may have started in the late Seleucid and early Parthian periods, seems to concretely develop between the second half of the 1st century BCE and the 1st century CE. Some inscriptions in Greek discovered at Susa may attest to this transformation of the landscape. For example, nos. 11-12, dated to 1-2 CE or 8-9 CE mentions Zamaspès, the strategos of Susa or Susiana, who created a canal system to channel the water of the Gondéisos (possibly a tributary of the Eulaios) to irrigate and fertilize certain lands.[81] This model, as we have seen, is especially verifiable for Susiana, where the chronological distribution of the surveys allows for more detailed evaluations, but it seems partially valid also for the Shushtar area.

This hierarchical and capillary canalization system, whose relics are still partially preserved and detectable via remote sensing, probably allowed for large-scale rice cultivation and possibly of other agricultural products, as the sugar cane during the Elymean/Middle-Parthian period, ensuring a significant farming surplus that could be used for regional and interregional trade.

Rice was already cultivated and known in the southwest Asia area in earlier times, as various sources report. Diodorus Siculus mentions that rice fed the soldiers of Eumenes of Cardia in 316 BCE, probably in Iran,[82] and Strabo reports its cultivation in Susiana, based on an earlier account by Aristobulus of Cassandria.[83] Additionally, two texts from the Persepolis Fortification Archives seem to mention the handling of rice, *mirizìš* in Elamite, between the toponyms of Liduma and Kurra, along the royal road between Susa and Persepolis.[84] Chinese sources (Sima Qian's Shiji) also appear to attest to the presence of rice in 'Anxi', the kingdom that likely corresponds to the ancient name of the Parthian Empire. Most historians recognize that rice was present in West Asia by the tail end of the 1st millennium BCE, considering it as a commodity crop.

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[79] MOGHADDAM, MIRI 2007.

[80] COMO 2021–2022, 50-51.

[81] CUMONT 1931, 16; ROUGEMONT 2012, 48–56, pls. 8–9, figs. 11–12.1–2.

[82] Diodorus Siculus, *Bibliotheca Historica*, 2, 36.

According to the archaeobotanical analysis, rice grains were discovered in Parthian layers at Susa together with Barley (*Hordeum*), Wheat (*Tritticum*), Lentils (*Lens*), Date (*Phoenix*) and Nutshell (*Amygdalus*), several of which (Barley, Rice, Wheat, etc.) necessitate of complex irrigation system for a crop-productivity in the environment of Susiana.[85] N. F. Miller identified 373 carbonized seeds of a short-grained variety of rice on the floor of the level 3A at Ville Royale II (locus 652), in association with a jar that was likely a storage container, possibly as an offering. Moreover, impressions of rice husks in mudbricks were reported by Wenke at sites in the South Dez plain near Susa, dating to the Elymean/Middle-Parthian period.[86]

If this scenario attested mainly during the Elymean/Middle-Parthian periods proves correct, as the remote sensing and archaeological data suggest, there is clear evidence of a profound conversion of the territory for agricultural and productive purposes beginning in the 1st century BCE, likely planned through public policies and the construction of important water infrastructures over enormous areas. The sum of the surveyed areas where there seems to be a widespread system of canalization is impressive over more than 3200 km^2. Certainly, Susa and Susiana, although, as clearly testified by R. Boucharlat, the city and hinterland are not exactly corresponding in many respects, during the Seleucid and early Parthian periods must have had a clear commercial role, evidenced by the monetary findings that confirm frequent contacts with Mesopotamia and the Gulf.[87] The role changed in favor of a regional city with a primary agricultural and productive vocation with state investments probably by the Kingdom of Elymais and, perhaps, also of the Parthian Empire.

The main system of larger canals in relation with the main rivers, identified in some areas through photo interpretation, may have also served a transport function for bulk agricultural goods, facilitating intra-regional trade.[88]

A last element to analyze concerns the integration and comparison of studies in lowlands with neighboring mountainous areas. The visibility of settlements and structures in mountainous environments, as well as their dating, is significantly more complex and considerably less explored in both remote and on-site territorial studies. The pioneering works conducted by V. Messina and F. Giusto sought to develop an innovative methodology for the mountainous and foothill areas of Izeh/Malamir (Khuzestan) to identify ancient sites and settlements, with a particular focus on the Seleucid and Parthian periods.[89] Their analyses clearly show that, in mountainous areas, the number and size of settlements are generally lower, partly due to visibility issues and the difficulty of defining their limits, compared to the valley areas and, especially, the lowlands analyzed in this work. These territories are also characterized by more stringent environmental constraints in comparison with plains, which influenced transit routes, settlement locations, defense and control fortifications. In the coming years, further development will surely involve verifying how the two systems integrated, particularly in relation to the different resources available and the functions that the territory needed to serve, and how they interacted in the foothill areas (as the northern and eastern fringes of the Susiana survey).

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[83] Strabo, *Geography*, 15, 3, 10–11; 15, 1, 18.

[84] MUTHUKUMARAN 2014; SPENGLER *et al.* 2021, 8.

[85] MILLER 1981, 140–142.

[86] WENKE 1975–1976, 120.

[87] BOUCHARLAT 1985. See the spread of Seleucid coins and their significance, especially from Seleucia on the Tigris: LE RIDER 1965, 446–447; BOUCHARLAT 1985, 76–77, fig. 3; APERGHIS 2004, 235.

[88] APERGHIS 2004, 73.

The integration of different landscapes and environments, at certain times, subject to the same political, military, and economic power will undoubtedly be one of the future challenges in landscape studies for a better comprehension of ancient Kingdoms and Empires.

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[89] GIUSTO 2022; GIUSTO, FOIETTA 2023; GIUSTO, MESSINA forthcoming.

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14. Man and Environment in the Mountain Region of Ancient Elymais

Francesca Giusto

Abstract
This study investigates how men interacted with the landscape in the mountainous region of the ancient kingdom of Elymais during the Hellenistic and Parthian periods. Focus of the study is the area in which the sanctuaries of Bard-e Nešāndeh, Masjed-e Soleīmān, Kal-e Chendar (Shami) and Hung-e Azhdar are located. These sites represent the most prominent archaeological evidence from the Hellenistic and Parthian periods in the region; however, the territorial context in which these testimonies are located has always remained marginal in the studies concerning the archaeology of the area. This research brings together both published and unpublished data from the archaeological survey and excavations conducted in the region; they are analysed within the geographical context, through the use of a GIS environment and comparison with cartographic and remote sensing data. These data are also examined in the light of the evidence of ancient authors.

Keywords
Elymais, Settlement pattern; Highlands; Sanctuaries; Hellenistic and Parthian periods.

14.1. Introduction

The study presented here investigates the interaction between man and landscape in the mountainous region of the kingdom of Elymais during the Hellenistic and Parthian periods.[1] The study focuses on the territory in which the sanctuaries of

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[1] I would like to thank the *Centro Ricerche Archeologiche e Scavi di Torino per il Medio Oriente e l'Asia* or *Centro Scavi di Torino* (CRAST) and in particular Prof. Vito Messina (University of Torino – CRAST), as well as the *Iranian Centre for Archaeological Research* (ICAR), for allowing the use of the unpublished photographic and topographic material. Moreover, I would like to thank: Dott. Mahshid Zeighami Moghaddam, Dott. Harir Sherkat and Ms. Liliya Semykina for their help with the translation of the cartography from Persian and Russian, Prof. Giorgio Carnevale (Dipartimento di Scienze della Terra, UniTo), Prof. Giampiero Lombardi (Dipartimento di Scienze Agrarie, Forestali e Alimentari, UniTo) and the late Prof. Simona Fratianni (Dipartimento di Scienze della Vita e Biologia dei Sistemi, UniTo) for their kind help and advices during the research. All the figures of the article were elaborated by

Bard-e Nešāndeh, Masjed-e Soleīmān,[2] Kal-e Chendar (Shami)[3] and Hung-e Azhdar[4] are located (Fig. 14.1). These sites are, in fact, the best-known archaeological evidence in the region for the Hellenistic and Parthian periods, and numerous studies concerning the archaeology of Elymais have focused on the architectural and iconographic analysis of the evidence offered by these sites; however, the territorial context in which these testimonies are located has always remained marginal. The study presented here tries to reconstruct the ancient topography of the region and to analyse the different modes of interaction between man and landscape. Particular attention is paid to the analysis of the landscape surrounding the sanctuaries, with the aim to try to better understand its relationship with these religious places.

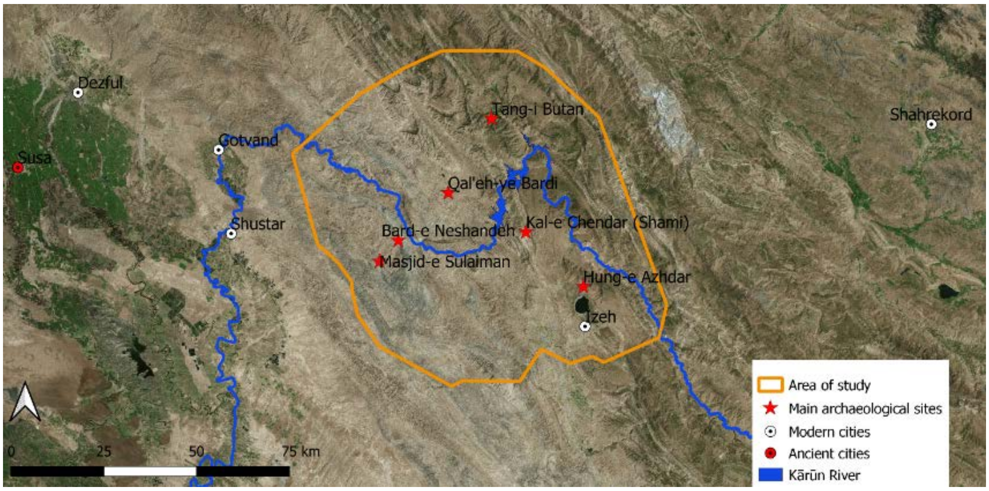
Dezful
Susa
Gotvand
Shustar
Tang-i Butan
Qal'eh-ye Bardi
Bard-e Neshandeh
Kal-e Chendar (Shami)
Masjid-e Sulaiman
Hung-e Azhdar
Izeh
Shahrekord
0 25 50 75 km
Area of study
Main archaeological sites
Modern cities
Ancient cities
Kārūn River

Fig. 14.1. The area of study. Satellite image: Bing catalogue (© Microsoft Corporation).

14.2. Methodology

A GIS environment was created for the study, using the open source software QGIS. The basic cartographic dataset consists of satellite images of high,[5] medium,[6] and

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the author. For place names, the transliteration of the Persian alphabet follows Meneghini, Orsatti 2012.

[2] Ghirshman 1976; Salaris 2017.

[3] Stein 1940, 141–158; Godard 1965, 153–163; Messina, Mehr Kian 2025 with bibliography.

[4] Messina 2015a.

[5] Satellite image GeoEye-1 (© Digital Globe), acquired the 09-23-2011; satellite image Quickbird (© Digital Globe), acquired the 05-08-2009; satellite image WorldView 02 (© Digital Globe) acquired the 04-15-2013; satellite image Pleiades (© Airbus), acquired the 02-21-2019; satellite image WorldView 03 (© Digital Globe), acquired the 12-15-2015. The images have 50 cm resolution and cover limited zones of the area of study.

[6] Image ID: D3C1203-100044A020 acquired 1972/07/10, Mission 1203-1. Camera resolution: 2–4 feet. The image was produced for the U.S. Department of Defence for military use and declassified in 2013. USGS (U.S. Geological Survey) – EROS (Earth Resources Observation and Science) (https://earthexplorer.usgs.gov/).

low[7] resolution, a digital surface model with a ground resolution of 30 m,[8] Iranian topographic maps at scale 1:25,000[9] and 1:50,000,[10] Soviet topographic maps at scale 1:200,000[11] and 1:100,000,[12] geological maps at scale 1:25,000[13] and 1:100,000[14] and soil maps at scale 1:250,000.[15] For the reconstruction of the ancient settlement network, the data available from published archaeological surveys were entered on the GIS.[16] Information on identified and published archaeological sites (mainly tombs and rock-reliefs) and information gained by remote sensing observations was added to ground surveys' data.[17] Unpublished data from the *Iranian-Italian Joint Expedition in Khuzestan* were also taken into consideration.

The study area is large 6500 km^2 and is covered in a complementary manner by different survey campaigns. Therefore, the methodology is not homogenous: the studies taken into consideration have variously employed non-systematic, systematic or intensive survey methods,[18] while in some cases only targeted visits to individual sites have been carried out. Moreover, the area of study is not uniformly covered, as there are some areas that were not surveyed, while for one area, the Plain of Pīān, the survey result were only partially published (Fig. 14.2).[19]

It should also be noted that in mountain areas, the collection and study of survey data is more problematic than in lowland areas. The preservation of anthropic structures is affected by the specific characteristics of the mountain environment, where man-made structures are potentially preserved to a lesser extent than in lowland areas, due to soil leaching that prevents the formation of stratigraphic accumulation, as well as the continuous reuse of the construction material of the structures, generally consisting of stone.[20] It is therefore more problematic to identify ancient settlements, which are generally smaller in size and more dispersed than those in lowland areas. Nevertheless, the lower degree of human activity may allow for better conservation of ancient structures in some cases.[21]

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[7] Bing satellite images and Google Earth Pro satellite images.

[8] DSM ALOS WORLD 3D, standard deviation 5 m, Japan Aerospace Exploration Agency (© JAXA) http://www.eorc.jaxa.jp/ALOS/en/aw3d30/index.htm.

[9] Vectorial format, National Cartographic Center (© NCC). Available only for limited areas.

[10] National Geographic Organization, sheets: 5853I Masjed Soleymān (1996); 5853IV Rāhdār (1997); 5854I Delī (2000); 5854II Qal'eh Khvāje Bālā (2000); 5854III Haftshaīdān (1997); 5854IV Dasht-e Lālī (2001); 5953I Īzeh (1999); 5953IV Chamreyhān (1999); 5954I Mohammad Ābād-e Dehnāsh (2001); 5954II Tarashok (2002); 5954III Keveshk (2002), 5954IV Sarhānī (2001) (© NGO, Army of the Islamic Republic of Iran) (in Persian).

[11] Soviet Army, Topographic Section (VTU), series SK 42, sheets: I-39-XXXII (1972) (code: Д-80 IX 72-H); H-39-II (1975) (code: Д-73-V 75-T); I-39-XXXIII (1976) (code: Д-6-VIII 76-H); H-39-III (1981) (code: Д-229-VI 81-T) (© военно топографическое управление генерального штаба) (in Russian).

[12] Soviet Army, Topographic Section (VTU), series SK 42, sheets: I-39-136 (1976) (code: Г-428 I 76-T); I-39-124 (1976) (code: Г-414 I 76-T); I-39-135 (1976) (code: Г-427 I 76-T); I-39-123 (1976) (code: Г-413 I 76-T); H-39-4 (1976) (code: Г-44 III 76-T); H-39-3 (1976) (code: Г-439 III 76-T) (© военно топографическое управление генерального штаба) (in Russian).

[13] Geological Survey and Mineral Exploration of Iran, sheets: 5854II SW Hasan Abad (2012); 5853I NW Masjed Suleiman (2012); 5853IV NE Rahdar (2012); 5854III SE Laderazi (2014) (© Geological Survey and Mineral Exploration of Iran) (in Persian). Available only for limited areas.

[14] Iranian Oil Operation Company, sheets: 20821E (Kūh-e Kamestān) (1967), 20825E (Kūh-e Āsmārī) (1966); 20821W Lālī (1967); 20825W Masjed-e Suleimān (1966) (© Iranian Oil Operation Company) (in English).

[15] Iranian Soil and Water Rearch Institute, sheet Khuzestan, 1991 (©Soil and Water Research Institute) (in Persian).

[16] Wright 1979; Sardari Zarchi *et al.* 2014; Faraji *et al.* 2015; Jayez *et al.* 2019.

[17] Godard 1965, 155–156; Schippmann 1970, 233–234; Giusto 2022; 2025. For a synthesis on rock-reliefs see Vanden Berghe, Schippmann 1985; Messina 2018a. For a comprehensive survey on tombs of Hellenistic and Arsacid periods see Farjamirad 2015 with bibliography. Other rock-reliefs are published in Farrokh *et al.* 2016.

[18] For the definition of terms: Banning 2002, 60–63; Cambi 2015, 157–177.

[19] Jayez *et al.* 2019.

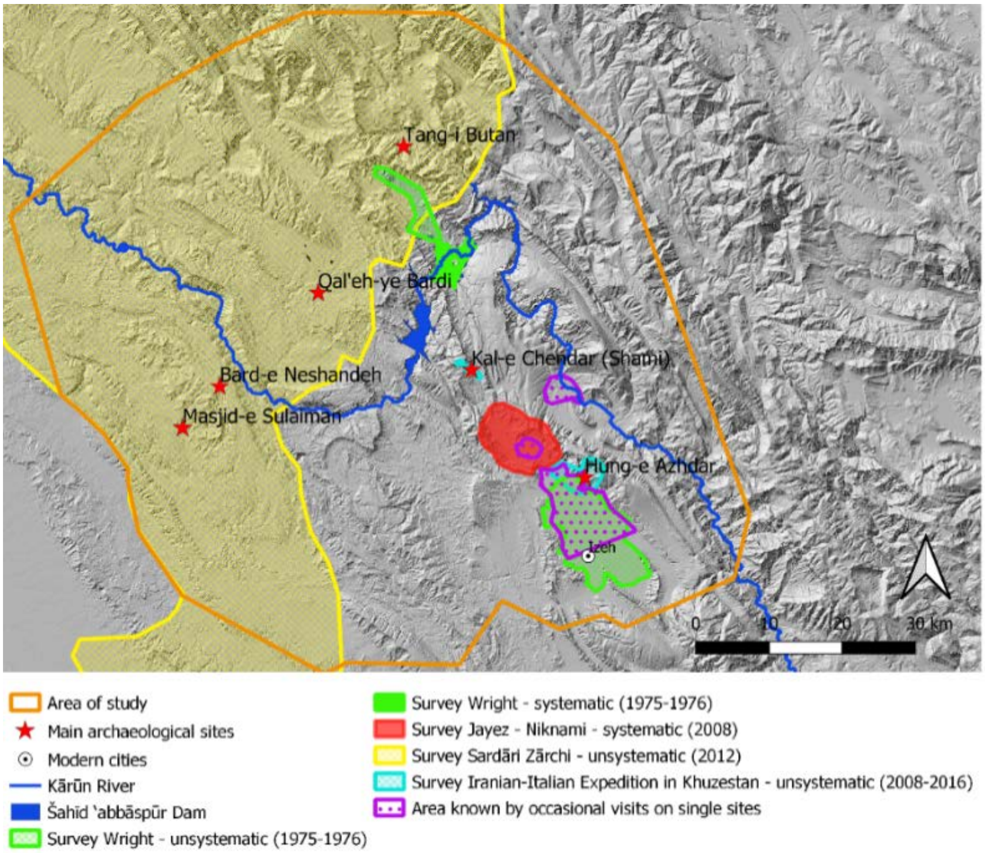
Tang-i Butan
Qal'eh-ye Bardi
Kal-e Chendar (Shami)
Bard-e Neshandeh
Masjid-e Sulaiman
Hung-e Azhdar
Izeh
0
10
20
30 km
Area of study
Main archaeological sites
Modern cities
Kārūn River
Šahīd ʿabbāspūr Dam
Survey Wright - unsystematic (1975-1976)
Survey Wright - systematic (1975-1976)
Survey Jayez - Niknami - systematic (2008)
Survey Sardāri Zārchi - unsystematic (2012)
Survey Iranian-Italian Expedition in Khuzestan - unsystematic (2008-2016)
Area known by occasional visits on single sites

Fig. 14.2. Survey data for the area of study.

Therefore, the portrait of the settlement pattern presented here cannot be considered exhaustive or definitive; the available data do, however, allow to outline a possible first picture of the way men inhabited the territory in the Hellenistic and Parthian periods.

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[20] On the use of stone as a preferred building material in the mountainous areas of the Near East: Watson 1979, 241–243, 282–284; Yakar 2000, ch. 4; Wilkinson 2003, 48, tab. 4.1.

[21] On survey in mountainous areas in the Near East: Banning 1996, 29–31; 2002, 72–73; Faraji *et al.* 2015, 65–66; Jayez *et al.* 2019, 57; Messina 2020, 94–97, 103, 114–115. For a study on taphonomic processes and the visibility of ceramic material in the Zagros area, see e.g. Niknami 2007. On the preservation of ancient structures in mountainous areas: Wilkinson 2003, 42, 185, 188, 196–198, tab. 4.1.

14.3. Geographical setting

The study area is located in the north-western part of the modern Khuzestan province, where the Zagros Mountain range unfolds, and encompass the counties of Īẕeh, Masjed-e Soleīmān and Andika.

In the western part the foothills that connect the Khuzestan alluvial plain with the Zagros range develop; the landscape is mainly hilly with rare plain areas, and the average altitudes vary between 200 and 600 m above sea level. The eastern part of the study area is characterised by a succession of north-west - south-east ranges, which give way to long, narrow valleys with relatively flat or moderately hilly areas. Here lies the Īẕeh plain which constitutes, within the Kārūn Basin, one of the largest intermountain plains in the central Zagros area.[22] The altitudes vary between 400–800 m a.s.l. in the intermountain plain to 1000–1500 m a.s.l. at the mountain peaks. To the east, a succession of mountain ranges with altitudes ranging from 1500 to 3000 m above sea level borders the area of study.

The region is crossed by a number of perennial rivers, the most important of which is the Kārūn; the river meanders through alluvial valleys and deep gorges, such as in several areas access to the water is difficult. Proceeding southwards, watercourses with a seasonal flow increase.[23] Two large dams on the Kārūn River have been built since the 1970s, which have slightly changed the hydrology of the area, as can be seen by comparing topographic maps produced before and after these events.

The study area has a bio-climate defined as 'Tropical Xeric' characterised by a rather long dry season and particularly heavy rainfall in winter.[24] The Zagros region is characterised in the winter months by low temperatures, which reach almost the freezing point, and high temperatures in the summer months, having thus a high seasonal temperature excursion.[25] Rainfall ranges from 400 to 800 millimetres per year, with a range between 300 and 500 mm for the Masjed-e Soleīmān county and between 500 and 700–800 mm for the Īẕeh county.[26]

Regarding the vegetation, the region is mainly characterized by the "Semi-Humid Zagrosian Oak Forest", a sparse deciduous oak forest resistant to cold and aridity.[27] The herbaceous flora consists mostly of annual species, and there are few leguminous plants suitable for animal foraging. Above an altitude of 1500 metres, however, herbaceous perennials become widespread. Large areas of the Zagrosian forest have, however, been destroyed and converted to agricultural use. To the west, on the hills the connects the Zagros to the Khuzestan alluvial plain, the "Pistachio-Almond Steppe" develops.[28] The herbaceous flora is mainly characterised by thorny or non-edible plants, which have developed as a result of the continued use of the land for grazing. The pistachio-almond steppe probably constitutes a relict of the Zagrosian forest and its integrity has been strongly influenced by past human activity.

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[22] OBERLANDER 1968, 276.

[23] OBERLANDER 1968, 274–276.

[24] DJAMALI *et al*. 2011, tab. 4, figs. 1–2.

[25] GANJI 1968, 228, 231–232, figs. 76 (n. III), 78.

[26] GANJI 1968, fig. 79; KHALILI, RAHIMI 2018, fig. 3.3, tab. 3.1.

[27] ZOHARI 1963, 38, 106, map at the end of the volume; FREY, PROBST 1986, 20–21; VAN ZEIST, BOTTEMA 1991, 29; VAN ZEIST 2008, 26.

[28] ZOHARY 1963, 94, 106, map at the end of the volume; FREY, PROBST 1986, 22–23; VAN ZEIST, BOTTEMA

Proxy data from some lake basins in western Iran has allowed to reconstruct a general picture of the palaeoenvironment in the Zagros region from Prehistory to the modern time.[29] The Lake Mirabad, the closest water basin to the study area, shares a similar environment in terms of topography, modern climate and vegetation, such that it is possible to apply the data obtained from this site to the study region. Proxy data show that both the climate and the type of vegetation cover—a sparse forest of plants of the genus *Quercus*—since 4000 years calibrated BP are broadly comparable to the present, and no substantial changes are recorded for the Hellenistic and Parthian periods.[30]

14.4. Settlement pattern and land use in the Hellenistic and Parthian periods

Survey data show a settlement pattern centred on intermountain valleys (Fig. 14.3). The settlements are concentrated in the plain areas of Īẕeh, Pīān, Batvand, Dasht-e Gol, Gol-e Gīr and Qal'e-ye Khavaje Bālā, characterised by a rather high availability of water, due to the presence of perennial watercourses and springs. In these areas, particularly in the Īẕeh, Pīān and Gol-e Gīr plains, cartography records the presence of deep soils, potentially very fertile and suitable for cultivation by irrigation or of medium-developed soils, rather favourable for dry farming and pastoralism (in part of the Batvand area).[31] On the other hand, the Dasht-e Gol and Qal'e-ye Khavaje Bālā plateaus have more stone-rich soils, quite unsuitable for agriculture and apt exclusively to pastoralism.[32] The settlements identified on the nearby mountain slopes or on hillsides are rare and quite scattered. From the data available so far, settlements in the study region seem to have generally modest size, as evidenced in particular by the *tappeh* or *tell*.[33] Settlement patterns with similar characteristics are attested, for the Hellenistic and Parthian periods, in other areas of the Zagros characterised by the coexistence of intermountain plains and reliefs.[34]

The settlements documented by the various survey campaigns seem to have different forms in mountainous areas than in the intermountain plains. *Tell* or *tappeh*

1991, 30; VAN ZEIST 2008, 25–27.

[29] PETRIE *et al.* 2018, 103–107 with bibliography.

[30] VAN ZEIST, BOTTEMA, 1977, 31, 59–60, 76–77, 81; VAN ZEIST, BOTTEMA 1991, 57; GRIFFITHS *et al.* 2001; STEVENS *et al.* 2006.

[31] Soil map, scale 1: 250.000, Iranian Soil and Water Rearch institute, sheet Khuzestan, 1991 (© Soil and Water Research Institute), soil class n. 3.1.

[32] Soil map, scale 1: 250.000, Iranian Soil and Water Rearch institute, sheet Khuzestan, 1991 (© Soil and Water Research Institute), soil class n. C.1 (Qal'e-ye Khavaje Bālā) and n. 1.5 (Dasht-e Gol).

[33] See also SARDĀRI ZĀRCHI *et al.* 2014, 70–71.

[34] CALLIERI 2007, 29–33; NIKNAMI, AMIRKHIZ 2008; KHOSROWZADEH 2010; MOHAMMADIFAR, NIKNAMI 2013; NIKNAMI *et al.* 2013; NEELY 2016.

are quite rare in the study area and are only found in flat or moderately hilly areas. More numerous, however, are the sites characterised by thin stratigraphy and low visibility on the ground; these sites are mostly identifiable only through the concentrations of ceramic materials and may present mounds of stones.[35] They have been identified in hilly or mountainous areas, as well as in the intermountain plains, and attest to the use of building techniques, such as stone masonry, which differ from the mud-brick architecture generally testified on *tell*.[36] According to some scholars, these sites are identifiable as the remains of seasonal settlements, due to both their reduced stratigraphic deposits and their frequent location on mountain slopes.[37] It should be noted, however, that in archaeology, the recognition of traces left by nomadic or semi-nomadic populations could very problematic,[38] especially in the absence of stratigraphic excavations, so an interpretation in this sense remains, until further data, at the level of possibility.

The settlement pattern considered in relation to physical geography and soils would suggest a land use centred on the agricultural production in the plain areas; in the hilly and mountainous areas, it seems plausible that economic activities such as pastoralism and the exploitation of woodland resources would have a greater weight.[39]

Ethnographic literature documents in mountainous territories the prevalence of systems based on sedentism and a mixed agro-pastoral economy or on the practice of transhumance.[40] On the other hand, semi-nomadism based on pastoralism was quite widespread in modern times in western Iran, especially in the area considered in this research, and is documented for example among the Bakhtiari, Basseri and Luri.[41]

Classic authors offer some insights into the economy and way of life of the Elymaeans. According to Strabo (Strab., *Geogr.*, XVI.1.18), the rather fertile intermountain plains of Elymais were exploited for agricultural purposes. Arrian in the Anabasis tells that the Uxienes lived both in plain areas and in the mountains (Arrian, *Anab.*, III.17.1), and defines the Uxienes living in the mountains as nomads or shepherds. The fact, however, that this people lived in villages is mentioned by both Arrian (Arrian, *Anab.*, III.17.2–3) and Curtius Rufus (Curt., *Hist. Alex.*, V.3.3–15). Historians have highlighted from the analysis of sources between the Achaemenid and Parthian periods that the economic system of the mountain peoples of this area of the Zagros was probably based on agro-pastoralism, with a mixed economy, and that it would not be possible to speak of nomadism. The prevailing settlement type was the sedentary community; agriculture was mainly practised in the valley areas, while the mountain slopes were exploited for grazing livestock; there were either short-range or seasonal movements on the nearby mountain slopes to exploit the summer pastures, or long-range journeys according to the system of transhumance and semi-nomadism.[42]

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[35] Sardāri Zārchi *et al.* 2014, 67, 70–71, *šekel* 7. In Persian literature such sites are referred as *mohvateh* o *mohavvateh* (pers. محوطه).

[36] Sardāri Zārchi *et al.* 2014, 76–78; Messina, Mehr Kian 2019; Messina 2020.

[37] Khosrowadeh 2010, 319, 322; Mohammadifar, Niknami 2013, 11; Sardāri Zārchi *et al.* 2014, 66; ʿAttārpour 2018, 864–865.

[38] Chang, Foster 1986; Cribb 1991; Frendo 1996; Alizadeh 2008; Potts 2014, 5–46; Abdi 2015.

[39] See also Sardāri Zārchi *et al.* 2014, 65–66.

[40] Watson 1979, ch. 2, 4, 11; Kramer 1982, 27–36; Amanolahi 2010; Balıkçı 1990, 307–311; Bencherifa, Johnson 1990; Boyazoglu, Flamant 1990, 376–378; Salzman 1996.

[41] Barth 1961, 1–11; Watson 1979, ch. 9; Digard 1981; Mortensen 1993.

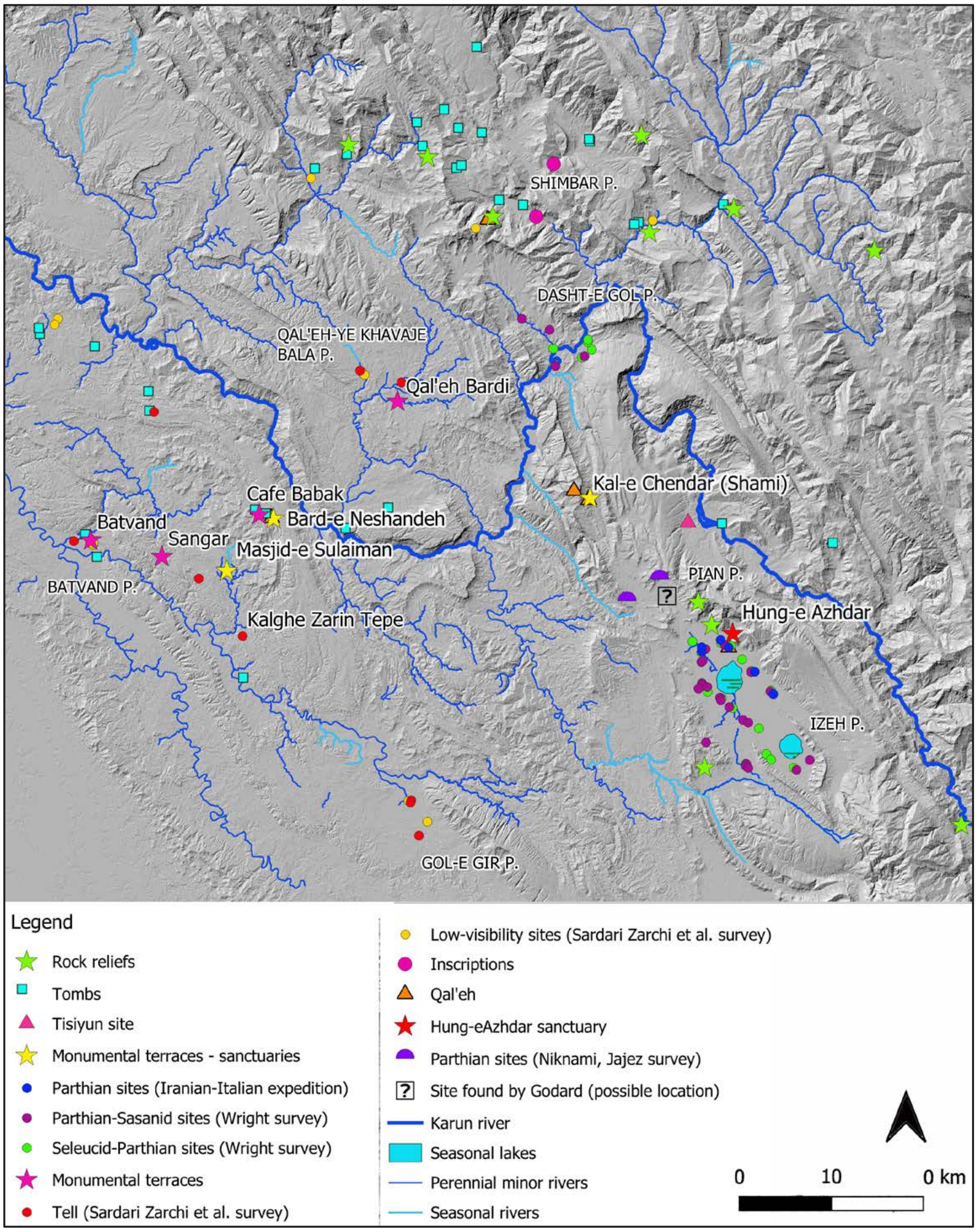
SHIMBAR P.
DASHT-E GOL P.
QAL'EH-YE KHAVAJE BALA P.
Qal'eh Bardi
Kal-e Chendar (Shami)
Cafe Babak
Bard-e Neshandeh
Batvand
Sangar
Masjid-e Sulaiman
BATVAND P.
PIAN P.
Hung-e Azhdar
Kalghe Zarin Tepe
IZEH P.
GOL-E GIR P.
Legend
Rock reliefs
Tombs
Tisiyun site
Monumental terraces - sanctuaries
Parthian sites (Iranian-Italian expedition)
Parthian-Sasanid sites (Wright survey)
Seleucid-Parthian sites (Wright survey)
Monumental terraces
Tell (Sardari Zarchi et al. survey)
Low-visibility sites (Sardari Zarchi et al. survey)
Inscriptions
Qal'eh
Hung-eAzhdar sanctuary
Parthian sites (Niknami, Jajez survey)
Site found by Godard (possible location)
Karun river
Seasonal lakes
Perennial minor rivers
Seasonal rivers
0
10
0 km

Fig. 14.3. The reconstructed settlement pattern in the study area in the Hellenistic and Parthian periods.

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[42] BRIANT 1982, 67–77; POTTS 2014, 117–118; BALATTI 2017, 207–208, 212–213, 239–240, 271; SALARIS, BASELLO 2019.

It is also possible that the mountain areas were exploited for timber. The present-day vegetation map indicates a degraded and thinning forest cover; it is plausible, however, that in Hellenistic and Parthian times the forest was more widespread and thicker. The exploitation of the mountainous areas of the Zagros for timber, especially juniper, but also oak, is attested by ancient Neo-Assyrian sources and classical authors.[43] A further insight into the economic resources of Elymais is offered by Pliny the Elder (Plin., *Nat. Hist*., XII.38–39). The author mentions a plant native of Elymais, widespread in the mountains to the east of the ancient city of Sostrata (modern Shushtar), which is probably identifiable with the *Juniper excelsa* or juniper, currently widespread in the area. According to the author, the plant was highly requested for its aromatic properties for fumigations and drinks and was imported outside the region up to Arabia.[44]

14.5. Mountains and the religious landscape

While very few settlements can be traced in the mountainous and hilly areas, several places of religious or at least cultural character can be found. Most of the evidence of rock-carved reliefs, rock tombs and sanctuaries come indeed from these areas.

With specific regard to cult places, the sanctuaries of Bard-e Nešāndeh, Masjed-e Soleīmān,[45] and Kal-e Chendar (Shami)[46] are characterised by multiple monumental terraces onto which temples and cult structures were build: this typology of sanctuaries is known in the literature as ‘sacred terraces’. The site of Qal‘eh-ye Bardi, which features a similar terraced structure, can plausibly be related to the same type of religious architecture; however, the site has been subjected to preliminary investigations, but no stratigraphic excavations have been carried out so far.[47] Recent surveys have identified similar large monumental terraces at Sangar,[48] Batvand,[49] and Cafe Babak,[50] but it has yet to be confirmed if they had a cultic function. The so-called ‘sacred terraces’ are all located in the mountainous or hilly areas, far from the more densely populated plains of Batvand (for the sanctuaries of Bard-e Nešāndeh and Masjed-e Soleīmān; Fig. 14.4), of Īẕeh and of Dasht-e Gol (for the sanctuary of Kal-e Chendar; Fig. 14.5). Two other terrace structures for which an interpretation as cult sites remains to be confirmed, namely the sites of Sangar and Qal‘eh-ye Bardi, are located several kilometres away from the plains of Batvand and Qal'eh-ye

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[43] Balatti 2017, 319–320.

[44] Potts 2019.

[45] Ghirshman 1976; Salaris 2017

[46] Stein 1940, 141–158; Godard 1965, 153–163; Messina, Mehr Kian 2025 with bibliography.

[47] Ghirshman 1976, 150, note 3, pl. CXXXI–CXXXIII; Kleiss 1998, 245–250, abbr. 22.2–3; Sardāri Zārchi *et al*. 2014, 69–70, *tavsīr* 10–11, *šekel* 5, 7 (KS-2130); ʿAttārpour 2018, 846; Messina 2018b.

[48] Sardāri Zārchi *et al*. 2014, 68–69, *tavsīr* 3–4, *šekel* 7 (KS-2017); ʿAttārpour 2018: 848, 852, 856, 859, 861–862, *tavsīr* 9, 12.

[49] Sardāri Zārchi *et al*. 2014: 69, *tavsīr* 5–7, *šekel* 2–3, 7 (KS-2056); ʿAttārpour 2018: 847, 852, 856, 859, 861, *tavsīr* 7, 13.

[50] Sardāri Zārchi *et al*. 2014: 69, *tavsīr* 8–9, *šekel* 4, 7 (KS 2063); ʿAttārpour 2018: 848, 852–854, 856, 859, 863, *tavsīr* 8, 14.

Khavaje Bālā respectively. The monumental terrace of Batvand, instead, is located on a hilltop, but, unlike the other sites, was built near a cluster of settlements within the small plain of the same name. Should the religious connotation of the site be confirmed by new data, this would suggest how in the area of study the spatial relationship between the 'sacred terraces' and the settlements could take different forms. Both the sanctuaries of Bard-e Nešāndeh and Kal-e Chendar were built in areas unsuitable for the foundation of large settlements, both due to the orography of the terrain (Kal-e Chendar) and to the limited availability of water (Bard-e Nešāndeh). More favourable from the point of view of land use, access to water and availability of natural resources seems instead to be the hilly area where the site of Masjed-e Soleīmān is located; here there are also rich deposits of hydrocarbons possibly already exploited in antiquity for the extraction of bitumen (but we know nothing about the Hellenistic and Parthian periods specifically).[51]

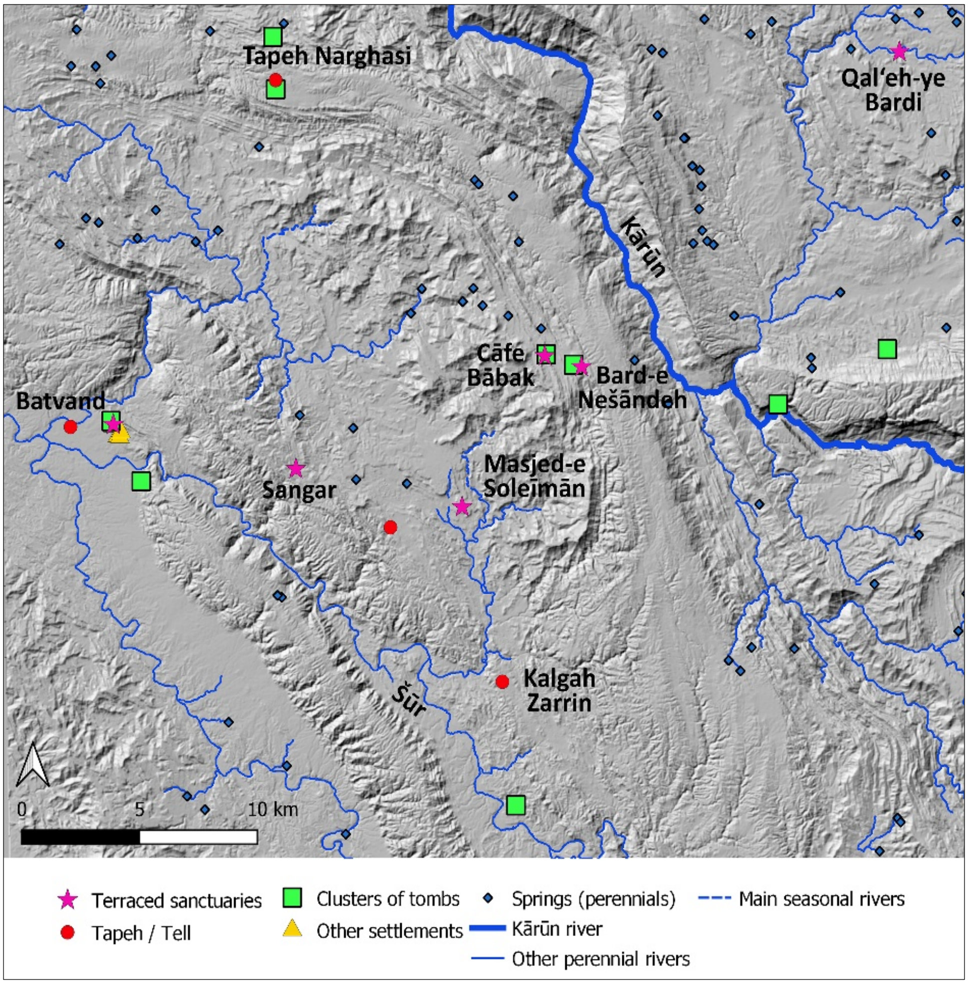
Tapeh Narghasi
Qal'eh-ye Bardi
Kārūn
Cāfe Bābak
Bard-e Nešāndeh
Batvand
Sangar
Masjed-e Soleīmān
Kalgah Zarrin
Šūr
0
5
10 km
Terraced sanctuaries
Tapeh / Tell
Clusters of tombs
Other settlements
Springs (perennials)
Kārūn river
Other perennial rivers
Main seasonal rivers

Fig. 14.4. The settlement pattern in the Hellenistic and Parthian periods near the sanctuaries of Bard-e Nešāndeh and Masjed-e Soleīmān.

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[51] For a more detailed analysis on the topography of the 'sacred terraces' see MESSINA 2015b; MESSINA, MEHR KIAN 2018; GIUSTO 2022; 2023; 2024; 2025.

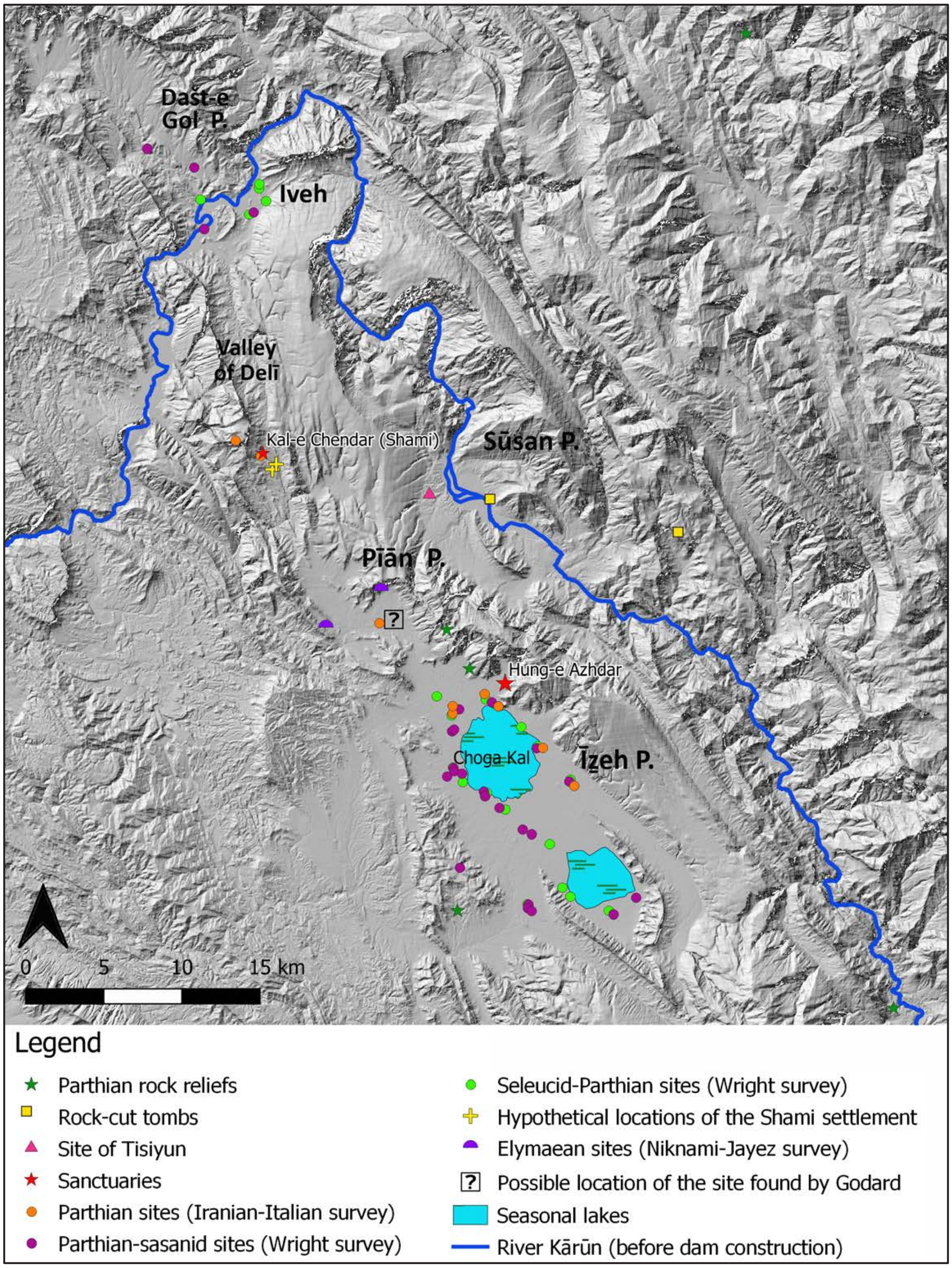
Dašt-e Gol P.
Iveh
Valley of Delī
Kal-e Chendar (Shami)
Sūsan P.
Pīān P.
?
Hung-e Azhdar
Choga Kal
Īzeh P.
0 5 10 15 km
Legend
Parthian rock reliefs
Rock-cut tombs
Site of Tisiyun
Sanctuaries
Parthian sites (Iranian-Italian survey)
Parthian-sasanid sites (Wright survey)
Seleucid-Parthian sites (Wright survey)
Hypothetical locations of the Shami settlement
Elymaean sites (Niknami-Jayez survey)
Possible location of the site found by Godard
Seasonal lakes
River Kārūn (before dam construction)

Fig. 14.5. The settlement pattern in the Hellenistic and Parthian periods near the sanctuaries of Kal-e Chendar (Shami) and Hung-e Azhdar.

From the available data, it seems probable that the so called 'sacred terraces' were extra-urban sanctuaries. It is currently not possible to assume with certainty that the sanctuaries of Bard-e Nešāndeh, Masjed-e Soleīmān and Kal-e Chendar were situated in remote places far from the settlements, especially in the case of Masjed-e Soleīmān, whose surroundings are extensively covered by the modern town; what has been brought to light so far, however, would seem to exclude the presence of large settlements in the vicinity. The absence of significant settlements in the areas surrounding the sanctuaries would seem at first glance difficult to explain when compared to the monumentality and richness of the findings found at the three cult places (Figs. 14.4–14.5).[52]

The site of Hung-e Azhdar is a small open-air sanctuary built on a mountain slope.[53] The sanctuary is located near the Īẕeh plain, the largest intermountain plain of the region, particularly favourable to agricultural exploitation and characterised, according to the analysis of available data, by a rather high settlement density and by the presence of a medium-sized centre (Choga Kal).[54] In the plain, there is also a singular concentration of rock reliefs dating to the Parthian period, namely the sites of Hung-e Kamalvand, Hung-e Yar-e ʻAlivand, and the (out-of-context) boulder of Bid Zard.[55] Unlike the 'sacred terraces', moreover, the site of Hung-e Azhdar is located in an enclosed area, within a small semi-circular valley almost entirely surrounded by mountainous relief; the surrounding mountains form a natural barrier, with altitudes between 1000 and 1500 m above sea level and a steep slope. According to the data currently available, the sanctuary of Hung-e Azhdar does not seem to be directly related to a settlement in the vicinity of the cult area, while the presence of a Parthian settlement within the Hung-e Azhdar valley cannot be excluded with certainty (Fig. 14.5).[56]

14.6. Road network

Considering the location of the sanctuaries, how was the spatial relationship between the cult places and the settlement network configured?

To try to hypothesise the appearance of the ancient road network in the study region, an analysis using the Least Cost Path algorithm was carried on.[57] The use of such a mathematical model appears useful for highlands, where differences in altitude and slope can heavily influence the route layout, particularly in areas characterised by the presence of deep gorges and valley corridors, such as the area of study. Two different cost maps were constructed which simulate the flow of watercourses in the winter and summer seasons.[58] The results obtained by the algorithm were then modified taking the following factors into account:

a) The degree of feasibility or plausibility of running a regional road along the route. In the case of multiple possibilities, the ease of walking the route was favoured over its length, i.e. was chosen the track that crossed areas with a lower gradient, allowing existing height differences to be overcome in a gradual manner and thus requiring a lower energy cost;

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[52] On the issue see also Messina 2015b, 200; ʿAttārpour 2018, 858–859, 864–865.

[53] Messina 2015a.

[54] Eqbal 1979; Messina, Mehr Kian 2019; Messina 2020.

[55] Messina, Mehr Kian 2011 with bibliography.

[56] Faraji *et al.* 2015.

[57] Connolly, Lake 2006, 214–224; 252–256; Herzog 2014.

[58] On the elements and values selected to define a cost map see: Howey 2007; Verhagen 2019, 221–229; Herzog 2020. The factors that could have conditioned the movement and were included in the creation of the cost maps for this study are: changes in elevation (slope); the different classes of watercourses (perennial, large or small flow and seasonal), with different values depending on the flow; marshes, lakes and seasonal lakes.

b) The distribution of known sites dating back to the Hellenistic and Parthian periods;
c) The roads and tracks documented in modern cartography.

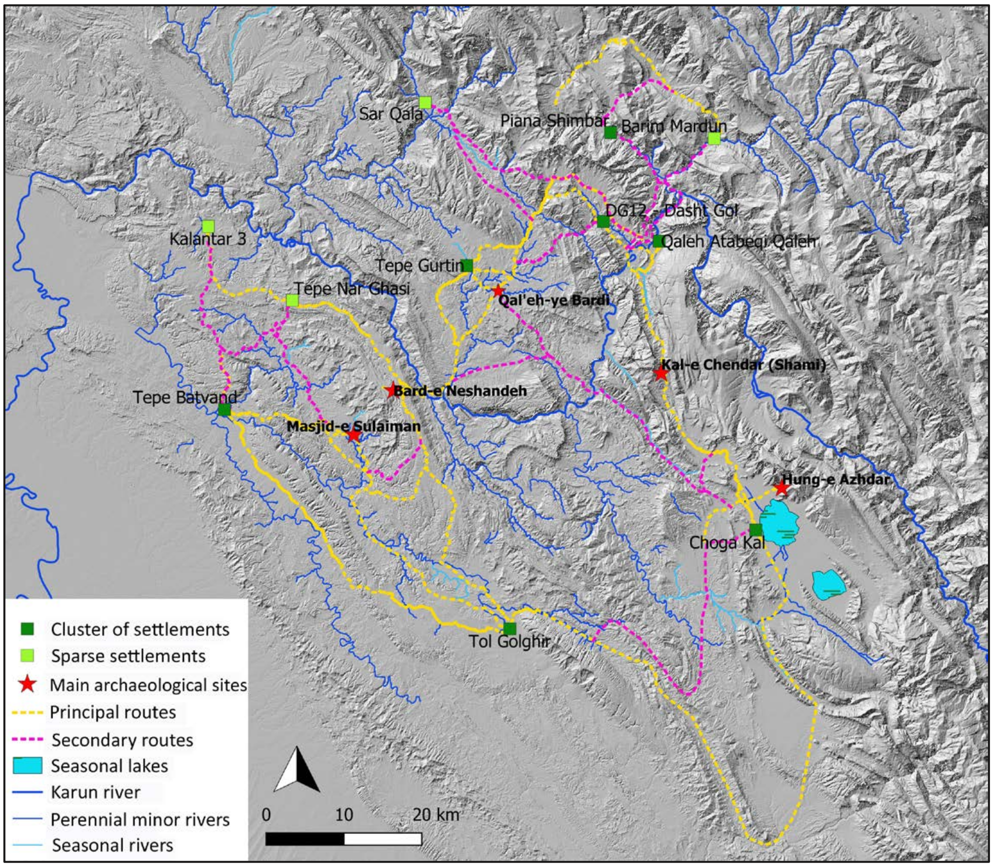
Sar Qala
Piana Shimbar
Barim Mardun
DG12 - Dasht Gol
Qaleh Atabeqi Qaleh
Kalantar 3
Tepe Gurtin
Tepe Nar Ghasi
Qal'eh-ye Bardi
Kal-e Chendar (Shami)
Tepe Batvand
Bard-e Neshandeh
Masjid-e Sulaiman
Hung-e Azhdar
Choga Kal
Tol Golghir
Cluster of settlements
Sparse settlements
Main archaeological sites
Principal routes
Secondary routes
Seasonal lakes
Karun river
Perennial minor rivers
Seasonal rivers
0
10
20 km

Fig. 14.6. The hypothetical route network in the study area in the Hellenistic and Parthian periods.

The obtained routes have been divided into roads of regional importance and roads of minor importance, depending on the greater or lesser concentration of sites in the areas reached by the routes and on the minor or bigger energy cost required for the travelling (Fig. 14.6). The network thus obtained constitutes a reasoned hypothesis of what might have been the road network that, in the Hellenistic and Parthian periods, connected the different areas of the study region. From the model it appears that the hypothetical road network connecting the most important clusters of settlements in the intermountain plains appears to intersect the sanctuaries known as 'sacred terraces' at several points, namely the sites of Masjed-e Soleīmān, Bard-e

Nešāndeh, Kal-e Chendar (Shami) and the site of Qal'eh-ye Bardi (for which the interpretation as a sanctuary is still hypothetical although very probable).[59]

The hypothesis that these sanctuaries intercepted routes of regional importance would find further support in the presence, near the sites of Bard-e Nešāndeh,[60] Kal-e Chendar,[61] and Qal'eh-ye Bardi,[62] of hilltop fortified structures, which, due to their position, could had the function of military control of the territory.[63] The *qal'eh* so far has been subjected only to preliminary investigations, but no full stratigraphic excavations were conducted.[64] What is preserved in the architecture of the structures dates to more recent periods; however, at least in the case of the fortifications of Kal-e Chandar (Shami) and Bard-e Neshande, the discovery of possible Parthian pottery nearby would leave open the possibility of the existence of previous structures.

14.7. Conclusion

Overall, while the results of the study cannot be considered exhaustive or definitive due to the fragmentary nature of the data, it has nonetheless been possible to draw an initial, possible picture of the topography of the area in the Hellenistic and Parthian periods, offering few hints on the relation between man and landscape in the area.

The prevalence of mountainous relief and the rarity of areas favourable for human settlement seemed to facilitate the development of concentrations of settlements in the intermountain plains, suitable for intensive agricultural exploitation, while sporadic smaller settlements were scattered in the nearby mountains and hills. The economic system plausibly involved a prevalence of cultivation in the intermountain plain, while small scale agriculture, pastoralism and timber exploitation where possible practiced on the surrounding mountains and hills. On the other hand, mountainous and hilly areas, while presenting an extreme rarefaction of settlements, seem to constitute the preferred environment for the installation of cult sites, such as the terraced sanctuaries of Bard-e Nešāndeh, Masjed-e Soleīmān and Kal-e Chendar (Shami). These are presumably to be interpreted as important extra-urban sanctuaries that were part of a complex network of relations with different centres in the region. The possible proximity to regional routes would seem to fit well with the characterisation of the three sanctuaries as religious point of reference for multiple settlements. On the contrary, the small open-air sanctuary of Hung-e Azhdar was founded in a small, closed valley, near a large intermountain plain densely populated in the Hellenistic and Parthian periods; possibly the sanctuary constituted the cult site of reference specifically for the inhabitants of the plain. The different position of the sanctuaries in relation to the settlements shows how, in the area of study, the religious architecture took heterogeneous forms and that different types of relations were established between the cult places and the settlement network.

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[59] For a more detailed analysis of the reconstruction of the road network see GIUSTO 2023; GIUSTO, MESSINA forthcoming.

[60] GHIRSHMAN 1976: 9, 11, figs. 2–3, pls. VI, VII: 2, VIII, 1–4.

[61] GIUSTO 2025, 48–49, figs. 5.23–27, with bibliography. Unpublished data courtesy of CRAST and ICAR.

[62] KLEISS 1998, 245–250, abbr. 22.2; MESSINA 2015b, 200–201; 2018b.

[63] KLEISS 1998, 245–246, 250; MESSINA 2015b, 190, 198, 200–202; MESSINA, MEHR KIAN 2018, 298–301.

[64] The *qal'eh* at Bard-e Nešāndeh was only partially investigated by R. Ghirshman.

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15. The Susiana Plain and the High-lands of Iranian Khuzestan: Pottery Production as Socio-cultural Indicator in the Hellenistic and Parthian Periods

Alessandra Cellerino

Abstract

Alexander's conquest and the new Seleucid, and then Parthian, political control over the satrapies of the fallen Achaemenid Empire, promoted an intensification of cross-regional economic and cultural connectivity by an unprecedented circulation of people, ideas, materials and technologies involving '...trasformazioni nella produzione e nel consumo della ceramica in relazione a quelle dei quadri politici ed insediativi'.[1] *The analysis of ceramic production, the most abundant material evidence in archaeological research, in the Hellenistic and Parthian period also testifies for nowadays Iranian Khuzestan and in particular for the Susiana plain and the Izeh/Malamir piedmont area, the keyresearch of the University of Torino Unit for the PRIN Project 2017 Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran, the presence of complex phenomena of coexistence of global and local trends in pottery production. The inter-regional traits evident in the ceramic repertoires of the two areas examined correspond to the diffusion, adaptation and integration of western models and types into the region's ceramic production and are associated, particularly in the piedmont area, with a production that originated in local pottery traditions of Iron Age III–IV. If ancient Susa remained a crucial hub in the network of political and economic contacts within the Seleucid and Parthian kingdoms, and probably played an essential role in the diffusion and transmission of cultural models and new trends, the highlands of Khuzestan, crossed by routes connecting Susa and Sushtar to the oasis of Isfahan, were a privileged meeting point between the Susiana plain (and indeed central-southern Mesopotamia) and the Iranian plateau. The archaeological researches confirm, not only for the pottery production, but also for some outstanding pieces, such as the bronze statues of Kal-e Chendar/Shami, and rock reliefs, such as the Parthian carving of Hung-e Azhdar, the balanced mixture of different cultural traditions in the kingdom of Elymais.*

Keywords

Pottery production, Susiana plain, Khuzestan highlands, Seleucid and Parthian periods, global and local trends.

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[1] CANTINI 2011, 159.

15.1. Introduction

The analysis of ceramic production, the most abundant material evidence in archaeological research, in the Hellenistic and Parthian period also testifies for nowadays Iranian Khuzestan and in particular for the Susiana plain and the Izeh/Malamir piedmont area, the key research of the University of Torino Unit for the PRIN Project 2017 *Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan*, the presence of complex phenomena of coexistence of global and local trends in pottery production.

The two specific chosen areas are representative of two different environmental and settlement situations, albeit belonging to closely related socio-cultural contexts.[2]

The archaeological publications show a considerable qualitative and quantitative variability between the available data relating to the Susiana and those concerning the piedmont region under examination, which has been much less investigated. The alluvial plain of the Susiana is an extensive investigated area of the Near East, while the neighbouring mountainous areas are much less studied.

The study of pottery presented is therefore based on published data from the excavation reports on the Seleucid and Parthian levels of the city of Susa and the related studies on the pottery found in those levels published between the 1970s and the late 1980s in the *Cahiers de la Délégation Archéologique Française en Iran* by Remy Boucharlat, Audran Labrousse, Pierre de Miroschedji.[3] The Susiana plain was selected for a survey conducted in 1973 and the pottery collected, dated from the Achaemenid period to the Islamic age, was published by Robert Wenke in 1975/1976 in the journal *Mesopotamia* (issue 10–11). The pottery of highland Khuzestan was partially known thanks to the survey carried out in the Izeh/Malamir region during the 1970s by Henry T. Wright,[4] but now new data acquired during the research of the *Iranian-Italian Joint Expedition in Khuzestan*[5] at Hung-e Azhdar and Shami/Kal-e Chendar investigated from 2008 to 2018, can be added.

15.2. The Hellenistic and Parthian pottery from the excavations at Hung-e Azhdar and Kal-e Chendar

The aim of the *Iranian-Italian Joint Expedition in Khuzestan* at Hung-e Azhdar,[6] one of the small valleys limiting the plain of Izeh at the feet of the Bakthiari chain, was primarily the acquisition by laser scanning of the well-known Parthian rock relief, sculpted on a boulder, depicting a scene of homage or investiture in which a horseman, followed by an attendant, proceeds towards four standing men wearing typical Parthian dresses. The work, conducted from the 2008 to 2010, was developed with the opening of trial trenches near the sculpted boulder and the topography of the valley of Hung-e Azhdar.

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[2] MESSINA 2020.

[3] BOUCHARLAT, LABROUSSE 1979; BOUCHARLAT 1987; DE MIROSCHEDJI 1987.

[4] WRIGHT 1979.

[5] The expedition, co-directed by V. Messina and J. Mehr Kian, was held by the Centro Ricerche Archeologiche e Scavi di Torino, the Iranian Center for Archaeological Research and the University of Torino. Partner institution was the Polytechnic of Torino.

[6] MESSINA 2015.

The pottery from Hung-e Azhdar[7] was found in the very disturbed layers of the excavated areas.[8] The platform and the benched terrace built in front of the boulder were re-built several times. The findings,[9] especially arrowheads, bronze bells and terracotta figurines, horses and bulls in particular, seem religious depositions in a cult place expression of an aristocratic and military milieu.[10]

The data and ceramic parallels collected suggest that the area was frequented for a log-lasting period,[11] for pottery of various date, spanning from the first half of the 2nd millennium BCE to the beginning of the 2nd century CE, were found mixed in the two recognized and excavated phases. This do not imply that the potsherds from Hung-e Azhdar can be also dated to the same wide time span, but many types remained unchanged during the centuries and the disturbed stratigraphy in which they were found did not allow us to circumscribe their chronology more precisely. For instance, very simple forms like hemispherical bowls and necked jars with rounded rim were produced for centuries and are barely diagnostic. Some types appear instead characteristic of more limited periods, like stands or button bases, which can be related to various types of goblets, dated from the Old- to Middle-Elamite period. The majority of the remaining pottery types can be dated from the late Iron Age to the Early Parthian period.

For the Seleucid and Parthian periods, the pottery from Hung-e Azhdar finds often comparisons with the materials found during the surveys in different areas of Khuzestan, like the Deh Luran plain, the Susiana plain, the Mianab and Ram Hormuz plains (although the material dated to the later periods is the most difficult to identify),[12] and at Susa and Choga Mish.[13]

It is remarkable that the pottery found on the two cult terraces of Bard-e Neshandeh and Masjid-e Sulayman, the most important sanctuaries of Hellenistic and Parthian Elymais so far excavated, which are not far from Hung-e Azhdar, does not reveal similarities with the pottery coming from our excavation, unlike other classes of materials, as bronze bells and arrowheads. Glazed amphoriskoi and pilgrim flasks, functionally interpreted as objects possibly used for cult purposes, and occurring frequently on both terraces,[14] are for instance absent in Area 1.

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[7] CELLERINO 2015, 123–176.

[8] FARAJI *et al.* 2015, 82–122.

[9] CELLERINO *et al.* 2015, 177–194. During the excavation campaigns were found 662 potsherds but the diagnostic sherds (rims, bases, decorated body sherds, handles and spouts) represent only the 36.25% of the samples.

[10] CELLERINO *et al.* 2015, 177, 188; MESSINA, MEHR KIAN 2015b, 203.

[11] The area was frequented at least since the beginning of the 2nd millennium BCE as the Elamite relief, dated to the 18th century, sculpted on the opposite side of the boulder attested (MEHR KIAN, MESSINA 2015a, 18). Recently Álvarez-Mon proposed to date the relief between 10th and 7th century BCE (ÁLVAREZ-MON 2019, 12).

[12] Deh Luran plain: WRIGHT, NEELY 2010; Susiana: DE MIROSCHEDJI 1981; WENKE 1975–1976; Mianab plain: MOGHADDAM, MIRI 2003; Ram Hormuz Plain: ALIZADEH 2014.

[13] DELOUGAZ, KANTOR 1996; ALIZADEH 2008.

The chronology of the closed forms is very problematic as only fragments of necked jars or small pots have been found in the unclear stratigraphic context that suggests a wide range of dates. The type with a handle, in particular, can be dated to the Achaemenid or post Achaemenid period and will become a very common form, especially manufactured in Glazed Ware, during Seleucid and Parthian periods.

Two ceramic types, among those found at Hung-e Azhdar can certainly be attributed to the late 1st millennium BCE and the first two centuries CE: the carinated bowls and the carinated bowls with flaring rim (Fig. 15.1).

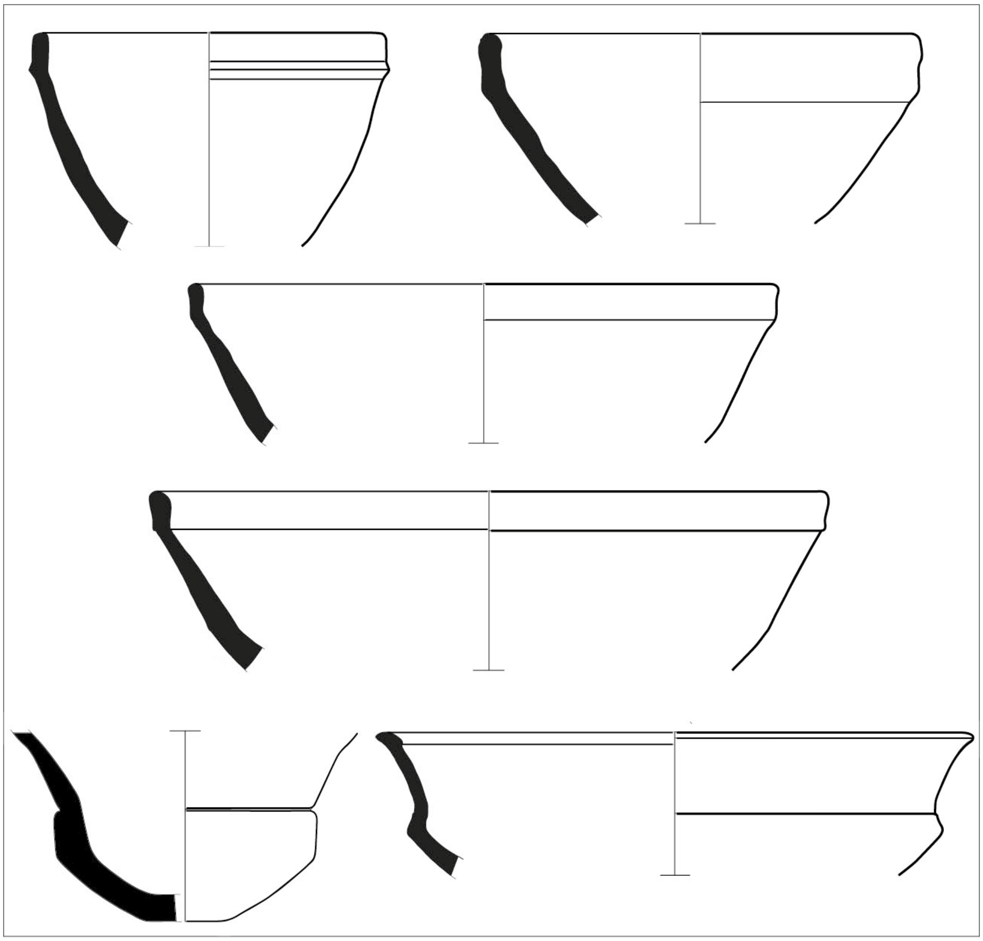

Fig. 15.1. Hung-e Azhdar, Seleucid-Parthian Common Ware carinated bowls and carinated bowls with flaring rim (after CELLERINO 2015, elaborated by C. Fossati, not in scale).

Carinated bowls, which are the most recurrent type (27.5% of open forms),[15] are widely attested in Susiana and Mesopotamia, probably their region of origin, from the Neo-Babylonian/Achaemenid period onward. These bowls appear to have been produced down in the Middle-Parthian period until the end of the 1st century BCE,[16] being usually made in Glazed Ware. The production of the type at Susa, found in layers of the Parthian period (levels 3A and 3B) of the Ville Royale (half of the 1st century BCE-half of the 1st century CE), or Seleucid to Parthian of the Apadana Est, seems to decrease progressively during the centuries, and the bowls change in profile, leaving only a very short and inclined wall toward the inside of the vessel.[17] The sherds of this type are attested at Hung-e Azhdar only in Common Ware, this induces to date them to the beginning of the Parthian period rather than to first centuries CE.

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[14] HAERINCK 1983, 33; BOUCHARLAT 1987, 212.

[15] CELLERINO 2015, 134.

Carinated bowls with flaring rim, originated during the Iron Age III/Achaemenid period, was a widespread and supra-regional ceramic shape attested in many ceramic corpora from different provinces of the empire, produced also in metalware and glass.[18]

The type has been continuously produced, even if with some variations, down to the Parthian period, particularly in Festoon[19] or Triangle Wares, with a higher occurrence in the regions of west Iran[20] during the 1st century BCE.[21] In the lowlands and highlands of Khuzestan this type is still rarely attested at the very beginning of the Parthian period, and seems to disappear in the course of the 2nd century BCE, according to Haerinck.[22]

The high occurrence in Area 1, probably an open-air sanctuary, of these two shapes leads to suppose that they could have been in some way related with the religious function of the structures there unearthed and possibly used during religious ceremonies not as offerings themselves, however, as suggested for the small amphoriskoi and pilgrim flasks found at Bard-e Neshandeh and Masjid-e Sulayman,[23] but rather as offering containers.

It is remarkable that the pottery from Hung-e Azhdar don't find close comparison with materials collected during the survey of the Izeh plain, where Azhdar is also located, conducted in 1976 by the ICAR and University of Michigan, and edited by H.T. Wright. Unfortunately, despite that sites appear to have increased in number and size from the Achaemenid to the Sasanian period,[24] the pottery of the Seleucid and Parthian periods is only partially published, and roughly dated, by H. Eqbal.[25] During the survey glazed pottery, usually green in colour, and pottery covered by a red slip, often polished, was found abundantly and was considered a characteristic Seleuco-Parthian local ware.[26]

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[16] The late chronology, 2nd century CE, proposed for the bowls from Choga Mish, is disputed on the basis of the parallels with the earlier examples from Susa (Delougaz, Kantor 1996, 10).

[17] de Miroschedji 1987, 9–11, fig. 24.

[18] See for all Dusinberre 1999 and 2003.

[19] Stronach 1974, 242–244, pl. LV: 8–9.

[20] Boucharlat, Haerinck 1991; Adachi 2005.

[21] Haerinck 1983, 22, 246, carte 8, 247.

[22] Haerinck 1983, 246.

[23] Ghirshman 1976, 15, 87; Haerinck 1983, 14, 28, 36.

[24] Eqbal 1979, 116; Wright 1979, 127.

[25] Eqbal 1979, 114.

Contrary to the findings of Hung-e Azhdar, these wares are well represented in the pottery assemblage from Kal-e Chendar, even if forms and types don't find close comparison with the materials coming from the survey of the Izeh plain. Similarly, the parallels with the pottery types found during the Iranian-Italian excavation in the nearby site of Hung-e Azhdar are surprisingly scarce.

The site in the valley of Shami, about 30 km north of present-day Izeh, was investigated by the *Iranian-Italian Joint Expedition in Khuzestan* between 2012 and 2018.

The excavation of this cult site of Hellenistic and Parthian Elymais[27] brought to light monumental terraces similar to those of the nearby sanctuaries of Masjid-e Sulayman and Bard-e Neshandeh but surrounded by a wide cemetery, including monumental tombs built in undressed stone, suggesting that religious and funerary functions were strictly interrelated.[28]

The pottery[29] comes largely from some of the investigated tombs and graves (T7, T9, T20, T23, Gr2), of which constitutes the most common funerary good, and to a lesser degree, from the investigated stratigraphic contexts, alas deeply disturbed for continuous reuse of building materials.

In a context like that of Hellenistic and Parthian Iran, where the pottery production was greatly regionalised,[30] the high occurrence of glazed pottery found at Kal-e Chendar includes the highlands of Khuzestan in the macro-area precisely defined by Hannestad as 'the glazed ware area'.[31] The chemical and petrographic analyses[32] performed on selected fragments, indeed, point to the Mesopotamian tradition of silica-soda-lime glaze (calcareous clay fabric, glaze consisting of silica as the vitrifying agent, soda rich plant ashes with high magnesium and potash contents as the flux, and copper, iron and manganese oxides as the main colouring agents), also attested in the ceramic assemblage of the Susa plain.

The production of glazed pottery significantly increased from the 4th century BCE. Glazed vessels from the end of 3rd and the beginning of the 2nd century became very common and the glazing achieved a better quality than in the Neo-Elamite and Achaemenid periods. Yellow, green and white glazes are preferred in the 3rd-first half of the 2nd century BCE, blue and turquoise, predominant colours in Kal-e Chendar pottery repertoire, are much more attested from the second half of the 2nd century BCE to the 2nd century CE.[33] An intense blue and bright olive green glaze, much vitrified and practically transparent, associated with the late Parthian repertoire of shapes,[34] are typical of the late phase of the Parthian age and instead absent from the pottery found at Kal-e Chendar.

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[26] EQBAL 1979, 114.

[27] The monumental religious complex of Kal-e Chendar could have been the place of a dynastic sanctuary at least from the 2nd century BCE (SHERWIN-WHITE 1984). For a new study and interpretation of the site see MEHR KIAN, MESSINA 2025.

[28] On the preliminary reports of excavation, see BAQHERIAN *et al.* 2016; BUCCI *et al.* 2017; 2018; CELLERINO, FOIETTA 2020. For the final report see MEHR KIAN, MESSINA 2025.

[29] During our excavations 303 pottery fragments and 36 complete or semi-complete vessels were collected (339 samples in total). Pottery from tombs forms 52.80% of the samples found. The diagnostic fragments, namely rims, bases, decorated body sherds and handles (152 fragments in total) represent 50,17% of the sherds found. On the pottery assemblage from Kal-e Chendar see CELLERINO, FOIETTA 2020; CELLERINO 2022; 2023; 2025.

[30] HAERINCK 1983, 238–257.

[31] HANNESTAD 1983, 107–112.

[32] DAVIT *et al.* 2020; 2025.

Most of the pottery types can be dated by comparisons and a range from the end of the 3rd century BCE to the 1st century CE, corresponding approximately to the Early and Middle Parthian phase, can be circumscribed. Moreover, very simple forms like hemispherical bowls and neckless pots with rounded rim were produced for centuries and are barely diagnostic. Some comparisons have been found in different areas of Khuzestan, however (like the Ram Hormuz plain[35] or the site of Choga Mish[36]), southward in Fars (Pasargadae[37] and the Mamasani area[38]), and westward on the Zagros region (Kangavar and Nahavand).[39]

In particular, most of the glazed pottery has far more comparisons with the pottery found in the Seleucid and Parthian levels of Susa and among the repertoire of glazed pottery from southern Mesopotamian sites as Larsa and Uruk or Failaka in the Persian Gulf, rather than with the Elimays sites as Masjid-e Sulayman, Bard-e Nechandeh or Chogha Mish, dated between the 2nd century BCE and the 1st century CE, according to the ceramic chronology of the Iranian south-west region, proposed by Ernie Haerinck.[40]

In the so called 'glazed area' the ancient glaze technique was used to produce both types which reflect continuity with the previous morphological traditions, and pottery forms inspired by Hellenistic Western forms, widespread in the Mediterranean from the 4th-3rd century BCE in different techniques such as black glaze, West Slope Ware, Megarian Ware,[41] that, from at least the beginning of the 3rd century, became part of the local ceramic repertoires.

The diffusion of Hellenistic ceramic types is certainly more evident in the major urban centres investigated to date, whether they are new foundations such as Seleucia[42] or ancient settlements such as Uruk[43] or Susa,[44] but the situation in smaller sites or isolated regions, cut off from the main trade routes, has less defined outlines.[45] In this context, Kal-e Chendar represents, therefore, an interesting case study. Indeed the majority of the preserved glazed pottery vessels found as funerary gifts in the excavated chamber tombs are Greek-inspired types.

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[33] CELLERINO 2004, 97–99; 2023; 2025.

[34] HAERINCK 1983, 51.

[35] ALIZADEH 2014.

[36] DELOUGAZ, KANTOR 1996; ALIZADEH 2008.

[37] STRONACH 1978.

[38] POTTS *et al.* 2006.

[39] HAERINCK 1983, fig. 17: 5; RAHBAR *et al.* 2014.

[40] HAERINCK 1983, 19, 37, 47.

[41] See on the production and diffusion of Hellenistic ware in the Eastern Mediterranean BLONDÉ *et al.* 2002.

[42] See recently VALTZ 2024.

[43] FINKBEINER 1993; PETRIE 2002.

[44] BOUCHARLAT 1993.

Almost all the distinctive shapes that can be considered as 'fossiles directeurs', according to the definition of de Miroschedji,[46] of the Greek influence on Near Eastern pottery, from the beginning of the 3rd century BCE to the end of Parthian age and beyond, are attested at Kal-e Chendar (Fig. 15.2). Fishplates, bowls with angular profile and outturned rim, amphoras and amphoriskoi derived from the Mediterranean prototypes, characterized the pottery production of Kal-e Chendar but Glazed Ware was used also for manufactured pottery that reflected locally rooted tradition, especially including some bowls, miniature vessels and lamps.

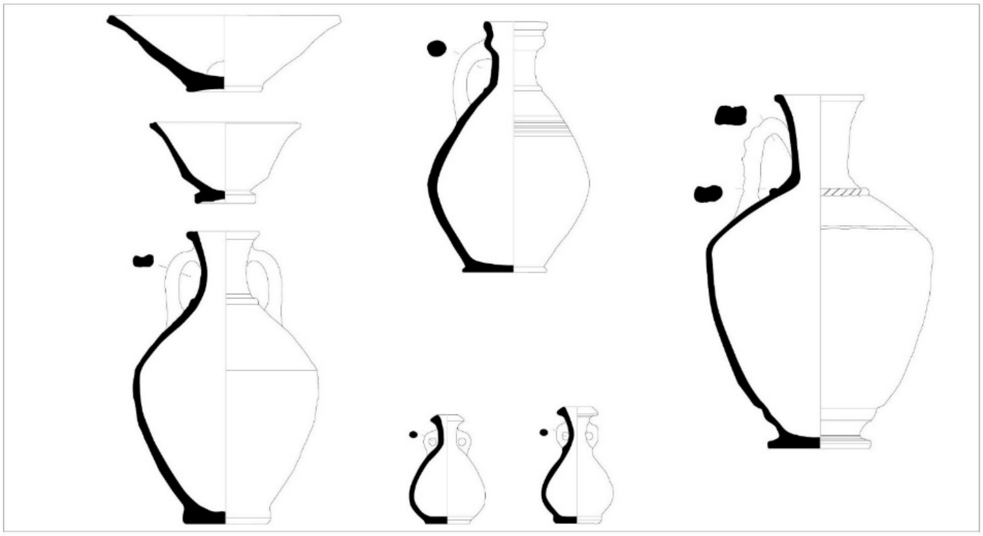

Fig. 15.2. Kal-e Chendar, Greek-inspired Glazed Ware pottery types (after Cellerino 2025, elaborated by C. Fossati, not in scale).

The fishplate is one of the most widespread form in the Hellenistic world and represents a case of adoption by local potters of a genuine Greek form. In the Near East the fishplate was produced in Glazed Ware, rarely in Common Ware, from the first half of 3rd century BCE. The turquoise glazed fishplates from Shami, as attested also at Susa and Failaka, are deeper than the original form. The Shami type has a flat disk base and a deeper body in contrast to the ring foot and the shallow shape of the western examples. The distinctive internal depression for sauce has been omitted replaced by a number of concentric incisions.[47]

The bowls with angular profile and outturned rim was borrowed from a Greek type produced in Attic and Corinthian black glaze from the end of the 5th century BCE. The type remains in vogue far into the Hellenistic period although some change occur over time. From the 4th century a general trend towards a deeper bowl is evident. Until the first quarter of the 2nd century a gently curved profile was preferred then the angular profile become favourite.[48] The persistence until the 1st century CE of the lower version with angular profile, always produced in Glazed Ware, is frequently attested in Mesopotamia and in south western Iran where the bowl was found at Susa, Choga Mish and Masjid-e Sulayman.

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[45] PUSCHNIGG 2019, 160.

[46] DE MIROSCHEDJI 1987, 43.

[47] HANNESTAD 1983, 28.

Among the closed shapes the amphora type represents an innovation in the oriental ceramic repertoire. Borrowed from Hellenistic types of the late 4th-early 3rd century BCE, the Shami type shows precise comparisons with the so-called Macedonian amphora dated in the 2nd century BCE.[49] The glazed amphora is a distinctive appropriation of a Greek prototype that led to the creation of manifold versions in Mesopotamia, Iran and the Gulf during the Parthian period.

The technical skill of the local potters is demonstrated by the original interpretation of another western vessel such as the oinochòe. The family of one-handled jars with ovoid or pyriform body gained in popularity becoming one of the diagnostic forms of the Parthian age throughout the Near East. These jars were produced in countless types and variants enriched by other sources of inspiration such as metalworking as testified by the clay rivets and applied pellets at the handle attachments, perhaps a souvenir of the studs headed pins that fastened the handle in the metal prototypes, as already suggested by Rotroff for West Slope vessels.[50] The twisted rope handles, well attested in Seleucid and Parthian amphoras and jars, probably derived this feature from the Attic version of the West Slope amphora and oinochòe.[51]

The amphoriskos[52] covered with a brilliant turquoise glaze is an original creation of a new form produced in great quantity by the local workshops and used as small container for precious oils. Its origin can probably be traced back to various Greek containers for perfumed oil, such as the small lékytos, the aryballos or the guttus.[53] These forms, totally unknown in the region, were probably introduced in the East during the final phase of the Seleucid era and gave rise to this small container that became one of the most characteristic types of the Parthian and Sasanian ceramic repertoire.

Also vessels, mainly small jugs and bowls, covered by a red slip, burnished with pressure in narrow strokes by a tool, were found, even if less numerous (Red Slip pottery forms 23.01% of the fragments found), as funerary gifts in T23 and T20, but a number of potsherds were collected in excavated strata, particularly in Trenches 1 and 10 (Fig. 15.3).

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[48] ROTROFF 1997, 158–159.

[49] DROUGOU, TOURATSOGLOU 2013, 52.

[50] ROTROFF 1997, 120 and fn. 4.

[51] ROTROFF 1997, 120–125.

[52] The production continued in Mesopotamia and central-southern Iran over a long period of time with little change, therefore its precise dating is often problematic. The general trend of development was toward pear-shaped smaller vessels rather than globular body forms and strap handles were preferred to loop handles. The neck became narrower and the wall thicker so that the vessels had, over time, a diminished capacity (CELLERINO 2025, 211–212).

[53] VALTZ 2000.

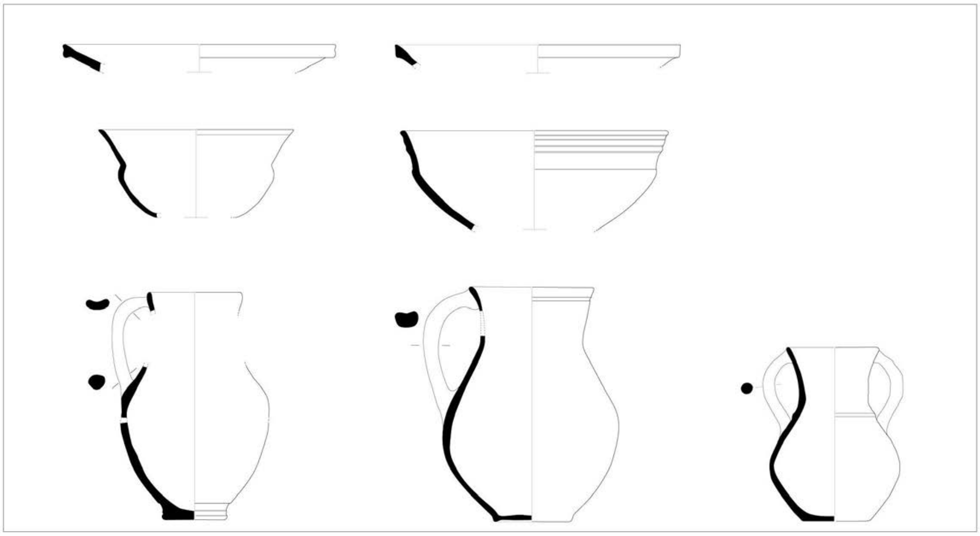

Fig. 15.3. Kal-e Chendar, Red Slip Ware pottery types (after Cellerino 2025, elaborated by C. Fossati, not in scale).

In Iran Red Slip pottery is attested in Khuzestan, Fars and Kerman from the Late Achaemenid period to the first half of the 2nd century BCE.[54] This surface treatment makes its appearance in the Achaemenid period in Fars (Pasargadae and Tol-e Spid)[55] and ceases to be made both in south-western, south and south-eastern Iran during the first half of the 2nd century BCE.[56] Haerinck suggested that it is typical of the ancient phase of the Parthian era (250-150 BCE) and pointed out that the same surface treatment has been already noted on a class of pottery produced in Northern Mesopotamia during the Hellenistic period.[57] In northern Mesopotamia in Red Painted Ware are made types clearly inspired by the varnished pottery production of the Hellenistic levels of Tarsus and Antioch reproducing Attic models,[58] during the 3rd and the first half of 2nd century BCE.[59] The red paint is usually a simple band on the top of the wall (both inside and outside) of open forms and only occasionally the paint covers the whole body. The spatial distribution of this class, present not only at Nimrud but also in the pottery collected in more recent surveys and excavations,[60] indicates that Red Painted Ware should be considered a north-Mesopotamian decorative technique rather than as an imitation of Western ware.

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[54] HAERINCK 1983, 20, 24, fns 45–47.

[55] Pasargade: STRONACH 1978, 184; Nurabad: HUFF 1975, 169, note 14; Tol-e Spid: PETRIE *et al.* 2006, 131–132.

[56] HAERINCK 1983, 234–235.

[57] OATES 1968, 123–124.

[58] OATES 1968, 123.

[59] OATES 1968, 122.

[60] See the bibliography in GAVAGNIN *et al.* 2016.

Two classes of Red Slip pottery are attested in levels II and III of the Village Perse-Achéménide excavated by Ghirshman and published in 1954. A type is characterized by a red fabric and polished red surface and belongs to a class of pottery produced in the Early Achaemenid period already found in the Bakhtiari mountains and in the Pish-e Kuh region.[61] A second type has a yellowish fabric and is covered by a red slip. This ware is probably the same found at Kal-e Chendar. It is noteworthy however that none of the forms published by Ghirshman have any comparison with the pottery from Kal-e Chendar.

Pottery covered by a red slip sometimes polished is also present in the Achaemenid levels of Choga Mish but has not been found in the Parthian level dated in the final phase of the period.[62]

During the Seleucid and Parthian ages, the Fars pottery differs very slightly from that of the previous Achaemenid period and reflects local traditions, so much so that the production of Red Slip pottery continues, while only few painted and glazed pottery appears.[63] In the Achaemenid phases of Toll-e Nurabad (phases B5a and B4) a certain number of fragments characterized by an internal and external orange-red slip, sometimes burnished, were found. This class continues to be produced, albeit in smaller quantities, in the subsequent phase B3 which represents a transitional phase to the post-Achaemenid period (namely Parthian)[64] and in phase B2 in which new forms appear and the presence of fragment of glazed sherds are reported.[65] Phases 12-1 of the nearby Toll-e Spid site also belong to the same ceramic horizon.

It is interesting to note that the pottery types manufactured in Red Slip Ware, found abundantly during the Iranian-American survey of the Izeh plain and considered a characteristic Seleuco-Parthian local ware,[66] have no comparisons with the sherds and vessels found at Kal-e Chendar.

If closed forms, jugs, an amphora, and jars are barely diagnostic and are produced from the Iron Age down to the Parthian period,[67] the two must common open shapes, the fishplate and the carinated bowl with flaring rim, belong to different pottery traditions.

In the ancient Near East the fishplate[68] was produced from the first half of 3rd century BCE usually in Glazed Ware but, although more rarely, also in Common Ware or in various local wares. Examples of the local production and adaptation of this western type are the red painted plates found at Nimrud and northern Mesopotamia that Oates considers a Mesopotamian version of the black glazed fishplate produced in the western Hellenistic world.[69] An example covered with a red slip has been found, unstratified, at Pasargadae.[70]

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[61] See e.g. ZAGARELL 1982, 41–46.

[62] DELOUGAZ, KANTOR 1996, 9–10.

[63] POTTS *et al.* 2006, 12.

[64] WEEKS *et al.* 2006, 73.

[65] WEEKS *et al*. 2006, 60–62.

[66] EQBAL 1979, 114–123, figs. 44–46.

[67] CELLERINO 2025, 217–219.

[68] See above.

Carinated bowls with flaring rims, conversely, are a typical shape of the Achaemenid period, spread over the regions of the empire, having been made of metal, pottery, and glass,[71] that were produced until the Parthian period. The bowls belong to the sub-type described by Stronach as deep bowls sharply or curvily carinated with flaring upper wall and rim, and rounded base, sometimes with omphalos.[72] At Persepolis and Pasargadae these bowls are dated by Stronach to the late or post-Achaemenid period (4th century BCE or 280-180 BC).[73] In the Parthian period the bowls were manufactured, even if with some variations, in local ware, as our Red Slip Ware or Festoon and Triangle Wares, with a higher occurrence in western Iran during the 1st century BCE, while in Common Ware the bowls are made even in Mesopotamia to Central Asia. In the lowlands and highlands of south-west Iran the type is attested at the very beginning of the Parthian period but, according to Haerinck,[74] the shape did not survive beyond the first half of the 2nd century BCE.

In the complex milieu revealed by the pottery findings from Kal-e Chendar, the Red Slip shapes and surface treatment are independent elements. Some forms find supra-regional comparisons derived on the one hand from the Hellenistic Mediterranean repertoire and on the other from Achaemenid tradition but the surface treatment appears to have a typical local character.[75] The Red Slip pottery of Kal-e Chendar, that were found with glazed pottery as part of the same grave goods, attest both that this class of vessels was still produced at least until the end of 1st century BCE[76] and the new ceramic repertoire inspired by widespread Western models was associated with the production of pottery types which go back to the Achaemenid pottery tradition.

Noteworthy, no samples of Eggshell Ware, characterized by particularly thin sections, very fine fabric and a limited, but characteristic, repertoire of forms, are attested at Hung-e Azhdar and Kal-e Chendar although they are a typical production of Mesopotamia and south-west Iran from the Achaemenid to the Parthian period.[77] The name was attributed to a ceramic class characterized by a very high quality of the fabric and the extreme thinness of the wall achieved by removing layers of clay, when it was leather-hard, with a blade. The technique remained a Southern Mesopotamian and Babylonian skill (including the Susiana plain), probably prerogative of a few selected city workshops.

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[69] OATES 1968, 123.

[70] STRONACH 1978, 247.

[71] See above

[72] According to DUSINBERRE 1999, 77, these are the most typical Achaemenid bowls.

[73] STRONACH 1978, 183.

[74] HAERINCK 1983, 22, 246–247, Carte 8.

[75] Form and decoration are often independent components, as Puschnigg remarks in a recent study on some types of pottery from Central Asia and Western Iran (PUSCHNIGG 2019, 159).

[76] Haerinck, on the contrary, dated the Red Slip Ware to the ancient Parthian period (250–150 BCE), (HAERINCK 1983, 24).

[77] HAERINCK 1983, 19–20, 38, 40, 48 (for the Parthian period); CELLERINO 2004, 99–103. Eggshell Ware bowls are attested in the Parthian pottery assemblage from Choga Mish (DELOUGAZ, KANTOR 1996, 9, pl. 70: F, L-M).

It is also remarkable that the pottery found on the two cult terraces of Bard-e Neshandeh and Masjid-e Sulayman, which are not far from Kal-e Chendar, reveals only few similarities with that coming from our excavation. Glazed amphoriskoi, functionally interpreted as offerings, and glazed small amphoras and bowls with angular profile or flaring rim, are the only forms occurring on the three sites.

15.3. The Hellenistic and Parthian pottery from Susa and the Susiana plain

At Susa, from around the middle of 5th and 4th centuries BCE, pottery show significant differences in fabric and shapes from the Neo-Elamite tradition.[78] The new shapes characteristic of Achaemenid ceramic repertoire, associated with the dramatically increased production of glazed pottery (white or yellow in colour) and the appearance of the Eggshell Ware from the level 6 of the Apadana Est and levels 5-4 of the Ville Royale II, find close comparison in the contemporary production of central and southern Mesopotamia. The clear discrepancies existing between the pottery of Susa, belonging to the cultural context of the "grande Mésopotamie", and that of the highlands of Khuzestan and Zagros Piedmont as well as the Deh Luran plain and Patak area, and east Khuzestan, where the site of Choga Mish is located, influenced by the production of Central Zagros (Godin Tepe II and Baba Jan), and, less evidently, North Fars,[79] are usually related to their different cultural milieu and not only to chronologies.[80]

The Achaemenid pottery of Susa, generally dated to the 4th century BCE, has great affinities with the pottery of the Early Seleucid period, particularly in the decorations and surface treatments.[81] This continuity was associated, in the first half of the 3rd century BCE, with a real change consisting of the introduction of several new shapes borrowed from the Mediterranean repertoire (Figs. 15.4–15.5).[82]

The evidences from level 5e of the area of Apadana Est and level 3E–3D of the Ville Royale show that fishplates, echinus bowls, carinated bowls with outturned rim, amphoras and chytrai (cooking pot), inspired by Greek prototypes and mainly produced in Glazed Ware, become part of the pottery repertoire of Susa associated to types that reflect continuity in the production of regional ceramic tradition (Figs. 15.7–15.9). Greek shapes are frequent in levels 5e and 5d but they are still present in level 5c dated to around the 1st century CE during the Middle Parthian period.

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[78] DE MIROSCHEDJI 1987, 16, 35.

[79] CELLERINO 2015, 155.

[80] BOUCHARLAT 1987, 212; DE MIROSCHEDJI 1987, 34.

[81] DE MIROSCHEDJI 1987, 33.

[82] BOUCHARLAT 1987, 196-197; DE MIROSCHEDJI 1987, 43.

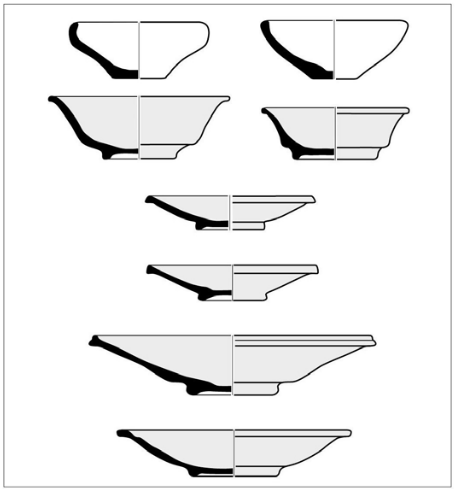

Fig. 15.4. Susa, Apadana Est, levels 5e–5c (from the Seleucid to the Middle Parthian period), Greek-inspired Common and Glazed Wares pottery types (after BOUCHARLAT 1987, elaborated by C. Fossati,

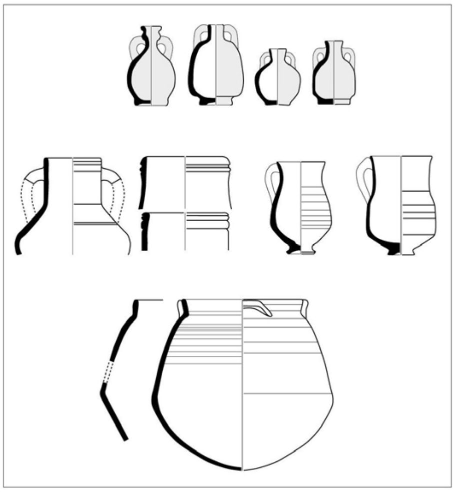

Fig. 15.5. Susa, Apadana Est, levels 5d–5c (Early-Middle Parthian period), Greek-inspired Common, Glazed and Cooking Wares pottery types (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

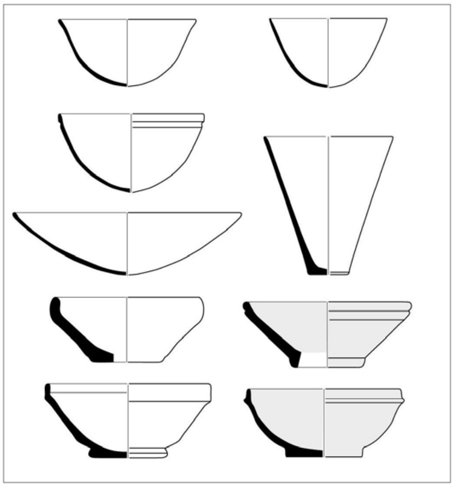

Fig. 15.6. Susa, Apadana Est, levels 5e–5b (from the Seleucid to the Late Parthian period), Eggshell Ware pottery types; Apadana Est, levels 5f–5d (Late Achaemenid-Seleucid period), Common and Glazed wares carinated bowls (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

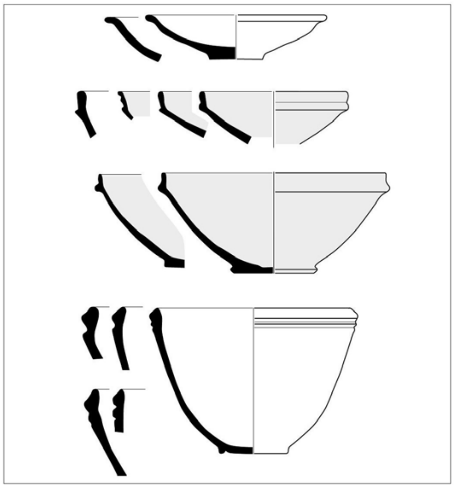

Fig. 15.7. Susa, Apadana Est, levels 5f–5d (from the Late Achaemenid to the Early Parthian period), Common and Glazed Wares plates, carinated bowls and large deep bowls (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

It is noteworthy that only at Susa, in the Hellenistic levels of the Apadana Est and Ville Royale, has been found a limited production of black glazed pottery imitating the black glaze of the Greek vases.

This glaze was used only on fishplates, echinus bowls and carinated bowls, a choice, unattested in other large sites of Mesopotamia and Elymais during the Hellenistic period, which probably did not meet the local taste.[83]

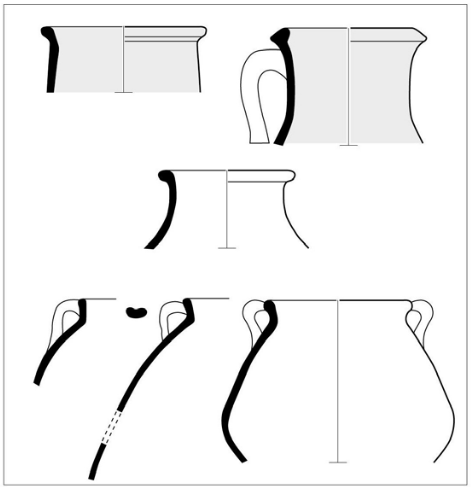

Fig. 15.8. Susa, Apadana Est, levels 5e-5d (Seleucid-Early Parthian period), Common, Glazed and Cooking Wares pottery types (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

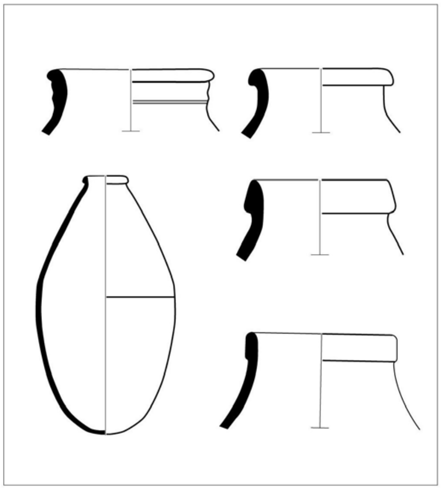

Fig. 15.9. Susa, Apadana Est, levels 5f-5e (Late Achaemenid- Seleucid period), Common Ware storage jars types (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

In the ceramic assemblage of Susa, in addition to glazed shapes, the production of so-called Eggshell Ware[84] was characteristic of the Seleucid and Parthian period (Fig. 15.6). The name was attributed to a ceramic class characterized by a very high quality of the fabric and the extreme thinness of the wall achieved by removing layers of clay, when it was leather-hard, with a blade, a process variously defined as paring or turning. The technique, sometimes used in the production of the Neo-Assyrian Palace Ware,[85] remained a Southern Mesopotamian and Babylonian (including the Susiana plain) skill adopted exclusively in the manufacture of Eggshell Ware. The class, and the associated new vessel forms, first appeared in the post Neo-Babylonian ceramic corpora and were contemporaneous with the establishment of the Achaemenid political authority in Mesopotamia.

The influence of Persian metal models is obvious and could have indeed inspired local potters to experiment new products outside their very conservative traditions. As a luxury tableware, which, required considerable technical skill in the manufacture process, this class had a limited but continuous production in Central-

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[83] BOUCHARLAT 1987, 187. Note that the fabric of the black glazed pottery (BOUCHARLAT 1987, fig. 59, nos. 3, 8–9, 12–13, 14) is "jaunâtre" or "brun rosé" in color. Therefore, the firing technique must have required three steps, as in the manufacture of the Greek prototypes, in which the oxidising, reducing and oxidising atmosphere alternates in the kiln.

[84] FLEMING 1989; CELLERINO 2004, 99–103. On the Eggshell Ware from Susa see recently BOUCHARLAT 2022.

[85] HUNT 2015, 66–67.

Southern Mesopotamia, Susiana and the Persian Gulf area at least from the Achaemenid to the Parthian period.

The Eggshell Ware appears at Susa during the 3rd century BCE, from level 3D of Ville Royale, level 5e of the Apadana Est and level 3 of the Palace of Artaxerxes on the Chaour[86] and was still produced, albeit to a lesser extent, during the 1st century CE.[87] The most common shapes are the hemispherical or cone-shaped bowls which show, over time, only limited developments: with the passage from the Seleucid to the Parthian period, the bowls gradually become shallower and wider and the rim is slightly thickened inwardly or outwardly.[88] The most characteristic shape of the Eggshell Ware production of Susa is the tall goblet[89] with straight or flaring wall and disk or ring base that find precise comparisons only at Failaka, where they are the most common shape during the 3rd century and the first half of the 2nd century BCE.[90]

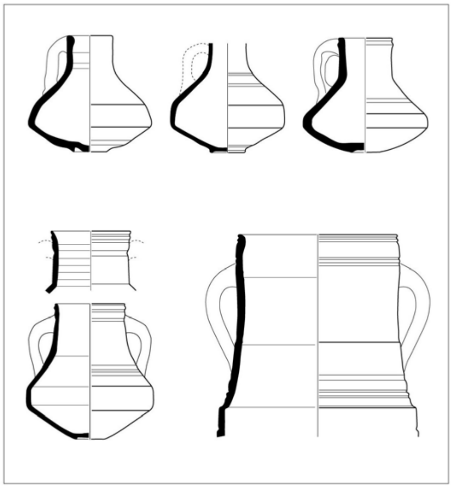

Fig. 15.10. Susa, Ville Royale II, level 3A (Late Parthian period), Common Ware one handled jars and amphoras pottery types (after DE MIROSCHEDIJ 1987, elaborated by C. Fossati, not in scale).

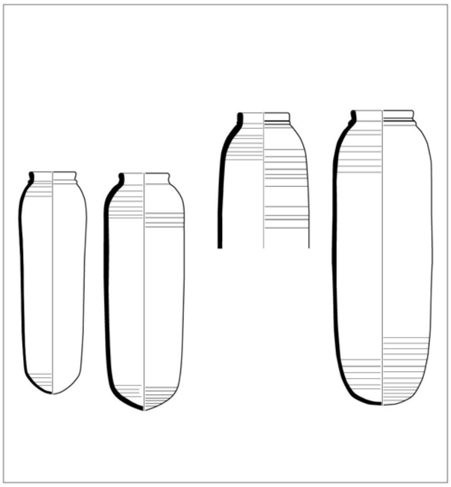

Fig. 15.11. Apadana Est, levels 5c-5b (Middle-Late Parthian period) Common Ware large storage jars types (after BOUCHARLAT 1987, elaborated by C. Fossati, not in scale).

According to Haerinck the production of glazed pottery significantly increased in the middle Parthian phase (150-end of the 1st century BCE). The range of colours became wider and various shades of turquoise and light blue appear, the presence of which can therefore be considered a dating criterion. In the levels of late Parthian period of the Ville Royale II dated to the first centuries of our era (levels 3A-2) and Apadana (levels 5b, 5a and 4) datable between the middle of the 2nd century and the mid-end of the 3rd century CE, two new classes of glazes appear, an intense blue and a bright olive green in colour very vitrified and practically transparent, associated with a repertoire of forms characteristic of the final phase of the Parthian period.[91] During the 1st century CE, shapes introduced in the Seleucid period such as the fishplates or vessels, as the carinated bowls,[92] derived from early local models, continued to be produced associated with new shapes considered typical of late Parthian pottery as the pear-shaped amphoras, a series of jugs and small amphoriskoi for perfumed oil and the large cylindrical storage jars without a neck (Figs. 15.10–15.11).

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[86] A dating between the end of the 3rd and the beginning of the 2nd century BCE has been suggested for level 3 of the Palace on the Chaour (BOUCHARLAT, LABROUSSE 1979, 78).

[87] It is interesting to note that no fragment of Eggshell Ware was found among the material of the Achaemenid levels 5 and 4 of the Ville Royale II, and during the excavation of the so-called Village Perse-Achéménide (GHIRSHMAN 1954).

[88] BOUCHARLAT 1987, 199; DE MIROSCHEDJI 1987, 46.

[89] BOUCHARLAT 2022, 72–76.

[90] HANNESTAD 1983, 45–47.

At Susa the Red Slip Ware considered a local product of the Izeh area, is represented by a small number of fragments found in level 5f of the Apadana Est dated in the beginning of the 3rd century BCE.[93] A single fragment, probably intrusive or residual, belonging to an open form has been found in level 3A of the Ville Royale II, dated in the 1st century CE.[94] Two class of Red Slip pottery are common in levels II and III of the Village Perse-Achéménide excavated by Ghirshman and published in 1954.[95] A type is characterized by a red fabric and polished red surface and a second type has a yellowish fabric and is covered by a red slip, probably the same ware attested at Kal-e Chendar and in the Izeh plain.

The isolated position of Susa pottery, due to the peculiar relationships with the contemporary Mesopotamia ceramic tradition,[96] within the panorama of ceramic production of the Khuzestan plain, seems to be confirmed by the results of the survey conducted by de Miroschedji in 1977 in the area of the Khuzestan plain east and north-west of Susa, in the Patak region. The pottery collected seem to illustrate a melted situation in a context of interactions between different tradition and contacts, particularly in the Achaemenid period, with Choga Mish as well as with Susa.[97]

The same impression is supported by the data acquired during the survey conducted in 1973 by Robert J. Wenke on settlement patterns of Susiana plain in Parthian and Sasanian times. If the contacts and parallels with the production of Susa cannot be disputed, it is also evident that several ceramic types attributed to the Seleucid or Parthian period do not find precise comparisons with the contemporary ceramics of Susa.

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[91] HAERINCK 1983, 51.

[92] DE MIROSCHEDJI 1987, 4–48, 51–53.

[93] BOUCHARLAT 1987, 189, 194.

[94] DE MIROSCHEDJI 1987, 46–47.

[95] The chronology defined by Ghirshman is controversial. The parallel between level I of the Village Perse-Achéménide (pre-Achaemenid) and layers 7–6 (Neo-Elamite II) of the Ville Royale II proposed by de Miroschedji, is generally accepted. Levels II and III are dated to the final phase of the Achaemenid period and part of the material is probably even more recent. If so, we must assume a hiatus between level I and II (BOUCHARLAT 2005, 243).

[96] See note 79.

[97] DE MIROSCHEDJI 1981, 171, 174.

The chronological sequence and the attribution of the pottery types to one of the individuated period[98] are, at least in part, debated: de Miroschedij and Boucharlat suggested that most of the potsherds dated by Wenke to the Achaemenid period are rather similar to stratified pottery of the Neo-Elamite II level at Susa, while most of those dated to the Seleucid period should be antedated to the Achaemenid age and the Parthian pottery could be, in part, Seleucid.

Actually, in my opinion, only a small number of types are incorrectly dated: types nos. 600, 602, 605, 626, 630, 633 (Fig. 15.12) attributed to the Seleuco-Parthian period[99] (fixed by Wenke between 325 and 25 BCE, probably an excessively long span of time to date precisely pottery types) should be dated, on the basis of comparisons, to 5th–4th century BCE as well as some shapes attributed to the Middle-Parthian period (in Wenke's study the period between 25 BCE and 125 CE),[100] are rather attributable to the first half of the 1st century BCE (types nos. 503, 535).

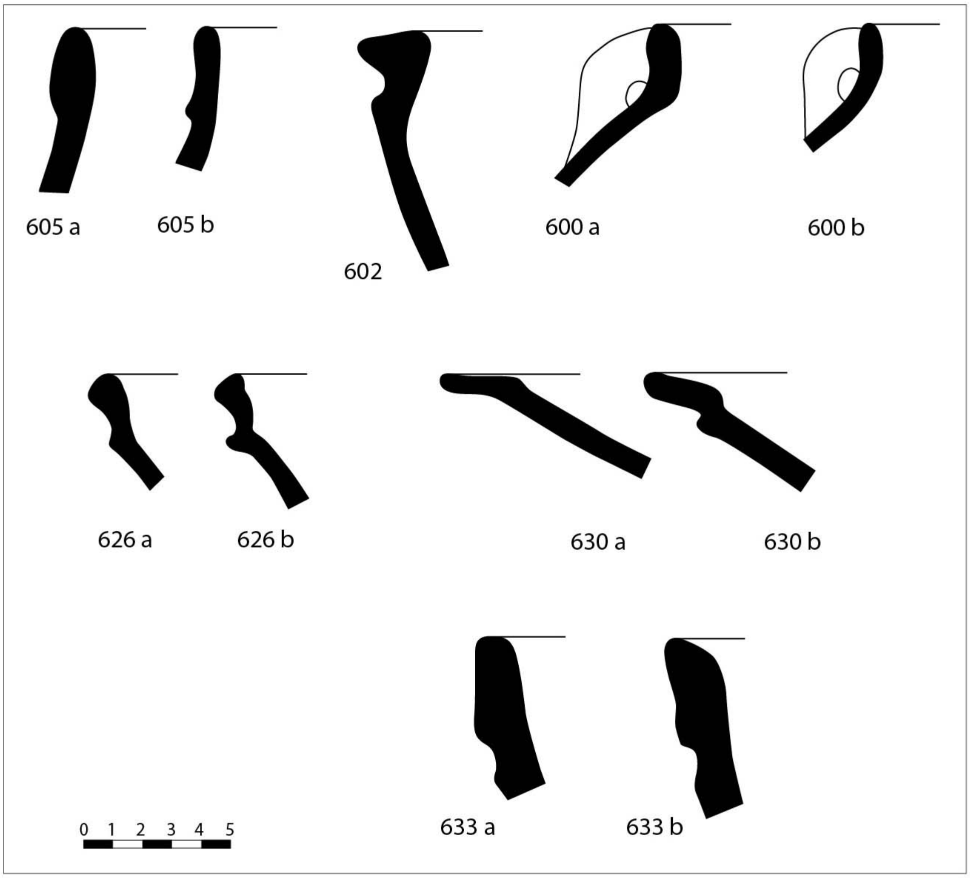

Fig. 15.12. Seleucid-Parthian pottery from Wenke's survey in the Susiana plain, probably to date to the 5th–4th century BCE (after WENKE 1975–1976, fig. 12, elaborated by C. Fossati, not in scale).

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[98] Wenke distributed the pottery collected in seven periods, from the Achaemenid to the Early Islamic age (WENKE 1975–1976, figs. 7–13).

[99] WENKE 1975–1976, fig. 12.

[100] WENKE 1975–1976, fig. 11.

It is particularly interesting to note the relatively paucity of glazed pottery compared to Susa production, even among the types attributed to the Middle and Late Parthian periods [101] and the lack of Glazed Ware between the potsherds dated to the Achaemenid period.

The few examples of Eggshell Ware[102] were attributed exclusively to the Middle-Parthian period, whereas they are apparently missing from the surveyed sites dated to the Seleucid period. Probably, as a luxury tableware which required a considerable technical skill in the manufacture process, this class was produced in a limited number of workshops located only in the major urban centres of the Seleucid and Parthian Empire.

15.4. Concluding remarks

Two different traditions have been recognized in the highlands of Khuzestan by examining the pottery repertoire from Hung-e Azhdar, Kal-e Chendar and the Izeh area: on the one hand a local tradition continuing into the Parthian period, represented both by the Red Slip Ware and Common Ware, still influenced by late Iron Age productions and echoing Achaemenid forms like carinated bowls with flaring rim; on the other, the Mesopotamian supra-regional tradition, represented in particular by the Glazed Ware pottery,[103] to which the pottery production of Susa also refers, in consequence of the well-known and long-lasting political and cultural contacts. Noteworthy, in the examined piedmont area no examples of Eggshell Ware, are attested, although they are a typical production of Central-South Mesopotamia, Susa and the Persian Gulf from the Achaemenid to the Parthian period. The lack of comparisons between the pottery from Hung-e Azhdar and Kal-e Chendar, the two cult sites excavated by *Iranian–Italian Joint Expedition*, is probably attributable to the different social and cultural context and religious meaning rather than to a different dating.

Thus, on one hand the pottery production of the highlands of Khuzestan seems to follow Iranian local traditions elaborated during Iron Age III and IV and maintain close relations with the neighboring areas to the north and north-east, on the other shows close contacts with the pottery tradition of Susa that, though clearly local, appears influenced by the production of Central-Southern Mesopotamia, with which also during the Seleucid and Parthian periods, the city carries on an ancient tradition of cultural, political and commercial contacts.

In addition to the inter-regional contacts, pottery from both the lowlands and the highlands of Khuzestan has features that can be defined as 'international' consisting of types of Greek origin that were integrated into local ceramic productions. These traits remain identifiable as common elements in different regional ceramic repertoires from the Mediterranean to Central Asia, attesting to wider cross-cultural contacts and connectivity in the Hellenistic world, which gave rise to simultaneous phenomena of homogenization and hybridization of cultures.[104]

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[101] WENKE 1975–1976, 209–213, figs. 10–11.

[102] WENKE 1975–1976, fig. 11, nos. 535–536.

[103] Note that the carinated bowls, one of the most common pottery types of the Seleucid and Parthian periods, found at Hung-e Azhdar are exclusively in Common Ware.

These multifarious interactions composed a complex, extended, in short, global system of networks of different character where ideas and things connecting different cultures (and everything these entailed) over long distance, transformed local societies in various ways generating a material and cultural koine.

The 'Hellenistic mainstream', as Messina defines it in a recent study,[105] that arose in the Hellenistic world was global to a degree that had never before occurred, not only for its unprecedented area of diffusion and the intensification of cross-regional connectivity, but also because different cultural traditions not only coexisted but rather converged and interacted in various ways by means of appropriation and original elaboration of models, ideas and technologies.

In this perspective the study of pottery, the most abundant material evidence in archaeological research, can help to illuminate and explain, within the Hellenistic world, different forms of networks dynamics and cultural interplay as expressed in materiality.

Such dynamic processes emerge clearly, in particular, in the pottery production of Susa.

Pottery production was involved in complex phenomena of coexistence of global and local trends that led to the adaption, imitation, or original interpretation of Greek pottery types. Indeed, the extensive processes of globalization co-occur with more limited and heterogeneous glocalisation processes.[106] This notion indicates how the global trends were accepted, or not, developed and adapted, and often, transformed by local communities.[107]

In the so called 'glazed area', to which also the pottery of the lowlands and the highlands of Khuzestan belongs, the influence of Greek prototypes on the local pottery never led to a passive imitation and indeed, the repertoire of extremely varied types and forms was manufactured almost exclusively in traditional ware such as Glazed or Eggshell Ware.

The forms and surface treatments of these 'hybrid' vessels were chosen by the local potters for reasons probably related to taste rather than to technical gap[108] or a lack of knowledge of specific technical skills.

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[104] Many studies have been devoted to globalization and connectivity in the ancient world. See for all: PIETERSE 1995; APPADURAI 2001; LABIANCA, SCHAM 2006; JENNINGS 2010; KARDULIAS 2014; HODOS 2017. See for the Hellenistic and Roman world: HINGLEY 2005; ERSKINE, LLEWELLYN-JONES 2011; PITTS, VERSLUYS 2015.

[105] MESSINA 2021.

[106] ROBERTSON 1994.

[107] Global Hellenistic trends are reflected in material culture in various regions of the Mediterranean and the Near East and are particularly manifest in the production of pottery, terracotta figurines and seals. See among the most recent publications regarding Hellenistic pottery: JAPP, KÖGLER 2016; PEIGNARD-GIROS 2019; KAMENJARIN, UGARCOVIĆ 2020.

[108] MONNICKENDAM-GIVON 2022, 54.

The selection of some Western shapes, while others were discarded,[109] was probably also influenced by both their similarity with types belonging to the locally developed ceramic tradition and responding to local needs and, at least for a part of the population, to an aspiration to conform to the emerging Hellenistic culture and, to a certain extent, to some newly introduced habits.[110]

Whether the emergence of these hybrid production, not only with regard to ceramics,[111] reflects a change of habits and the adoption of Greek customs according to different degrees of social or cultural interactions, is, however, difficult to understand.

Echinus bowls, fishplates, bowls with angular profile and outturned rim, amphoras and amphoriskoi derived from the Mediterranean prototypes and characterizing the pottery production of Susa and, at least in part, of the highlands, were manufactured, from the beginning of the 3rd century BCE to the end of Parthian age and beyond, generally, in Glazed Ware and have numerous comparisons with the pottery found in the Seleucid and Parthian levels of Southern Mesopotamian sites as Larsa and Uruk or Failaka in the Persian Gulf.[112]

The same shapes could be also produced, albeit less frequently, in Common Ware. Similarly, the Glazed Ware was used also in the manufacture of pottery types that reflected the continuation of local tradition.

To the same *milieu* strongly influenced by Hellenistic models, we can also refer others grave goods found at Kal-e Chendar such as the gold mouth covers and diadem decorated with floral and geometric designs and the bronze pin with an embracing couple, wearing Greek chiton and himation, seated on a lotus flower[113] or two imported roman bronze cochlearia that probably reached Kal-e Chendar along the road that connected the Mediterranean to the Syrian region and the Iranian plateau.

While it is an indisputable fact that the diffusion of the Hellenistic international pottery types was far from uniform and some areas, or also regions, cut off from the main trade routes, have less defined outlines[114] and were not deeply affected by Hellenistic influence, the major urban centres of the Seleucid and Parthian Empire, whether they were ancient settlements such as Uruk and Susa, or new foundations such as Seleucia, must have become central hubs, crucial not only in political and economy network but also playing an essential role within cultural networks in the diffusion and transmission of new models and trends.

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[109] See the recent study of Monnickendam-Givon on the cooking pottery manufactured during the Hellenistic period in Southern Phoenicia (MONNICKENDAM-GIVON 2022).

[110] LAFTSIDIS 2019, 221, fn. 105.

[111] WESTH-HANSEN 2011; MESSINA 2021.

[112] As remarked also for the pottery from many Mesopotamian sites, the many comparisons with the Hellenistic pottery from Athens, published by S. Rotroff (ROTROFF 1997; ROTROFF 2006) seem too constant to be explained as coincidence, considering that even in the Aegean area it is generally accepted that the Hellenistic pottery koine has an Attic origin, such that Furtwängler defines it as an 'Athenian koine' (FURTWÄNGLER 1997, 399; LAFTSIDIS 2019, 212, fn. 67).

[113] It would be tempting to attribute the production of pottery and jewellery to the main site of the region, Izeh-Malamir, during the reign of the Kamnaskirid dynasty, where at least part of the local population and workshops were certainly aware of Hellenistic figurative language as shown by the bronze and marble statues discovered in the 1930s at Kal-e Chendar (BUCCI *et al.* 2025).

[114] PUSCHNIGG 2019, 160.

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Acknowledgments

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This volume was published thanks to the financial support of the PRIN 2017PR34CS *Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan*.

As the activities of this PRIN are now successfully concluded, we would like to thank all those who participated in the workshops held in 2021 (in Turin, although mostly online due to COVID-19 restrictions) and in 2024 (in Ravenna): Alireza Askari Chaverdi, Alessandra Cellerino, Ali Eghraʿ, Aleksander Engeskaug, Barbara Faticoni, Enrico Foietta, Francesca Giusto, Dietrich Huff, Camilla Insom, Serenella Mancini, Carlo Marchetti, Giulio Maresca, Emad Matin, Diego Maria Mezzapelle, Kourosh Mohammadkhani, Bahra Salih, Andrea Sembroni, Paolo Severi, Gianfilippo Terribili, Massimiliano Vassalli.

Special thanks go to Prof. Gianfilippo Terribili for his constant work that made the project a success, to Dr. Carlo Marchetti and Dr. Paolo Severi for editorial care, and to Prof. Marco Ramazzotti for hosting the volume in the prestigious Atlante del Vicino Oriente Antico series.

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This fourth volume of the Atlas of the Ancient Near East (OCAVOA) collects 15 contributions by members of the three Units composing the PRIN 2017 ‘Eranshahr: Man Landscape and Society in Arsacid and Sasanian Iran. Texts, material culture, and society from Arsaces to Yazdegard III. Three case studies: Pars, Pahlaw and Khuzestan’ (2017PR34CS). These papers were presented during the conclusive workshop of the project, held in Ravenna on February 22-23, 2024. The project was conceived in 2017 and launched in 2018, representing a collaborative effort by a multidisciplinary team of scholars from Sapienza University of Rome, Alma Mater Studiorum University of Bologna, and Turin University, as well as several international partners. The project aimed to study the long millennium bridging two important transition periods in the history of western Asia, the first marking the passage from the Seleucid to the Arsacid era, the second being the fall of the Sasanian Empire and the rise of the Islamic Caliphate. In this framework, the book contains a set of archaeological, historical-geographical, and cultural studies on three ancient regions of western Iran during the Arsacid, Sasanian, and early Islamic periods, which combine into a coherent and innovative narration, shedding new light on the Iranian world in Antiquity, Late-Antiquity and the Early Middle Ages and opening the way for future investigations.

Carlo Giovanni Cereti is a prominent scholar in Iranian studies, specializing in Middle Persian, Zoroastrianism, and the Sasanian period. He has written extensively on Iranian languages, history, and religion, and leads archaeological work in Iraqi Kurdistan, notably at Paikuli.

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ISBN 978-88-9377-388-1
9 788893 773881

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